Improvement of the quality of life following the eradication of Helicobacter pylori infection in patients with chronic idiopathic urticaria

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Abstract

Background: The current study hypothesized that the impairment of quality of life following the appearance of Helicobacter pylori (H. Pylori)-induced chronic idiopathic urticaria (CIU) might be effectively prevented by eradicating this bacterium.

Methods: Sixty patients (11 men and 49 women; mean age, 34.2 years) affected by diagnosed CIU came from a series of consecutive patients referred to the Dermatology private clinics. The patients were examined for the presence of IgG antibody to H. pylori using ELISA method. Those with sero-positive results were scheduled for this clinical trial and received the eradication treatment consisting of bismuth subcitrate 120 mg plus metronidazole 250 mg plus tetracycline 250 mg qid plus omeprazole 20 mg bid (OBMT) at the time of diagnosis for 10-14 days and then assigned to the treated and the untreated groups. The quality of life of the two groups was assessed using the Dermatology Life Quality Index (DLQI).

Results: The mean of DLQI was unchanged in patients who were treated with H. pylori eradication treatment (from 28.67 ± 6.79 to 28.70 ± 7.90, p = 0.965), but this score was significantly increased in the patients without the evidence of H. pylori eradication (from 27.50 ± 7.22 to 33.20 ± 8.14, p <0.001). Multivariable linear regression analysis showed that the positive response to anti- H. Pylori regimen could prevent unfavorable changes in life quality in the treated patients.

Conclusions: Eradicating H. Pylori bacterium in CIU patients is not only associated with better outcome of this chronic condition, it can improve the quality of life in treated patients.

Key words: chronic idiopathic urticaria, Helicobacter pylori infection, quality of life.
Introduction

Chronic life threatening gastric disorders induced by helicobacter pylori (H. Pylori) infection such as chronic active gastritis, B-cell gastric lymphoma, and gastric cancer might potentially result in unfavorable outcomes in these patients [1]. The relationship between H. Pylori infection with other extra-digestive conditions such as cardiovascular, immunological or skin diseases such as urticaria has been also revealed [2]. Moreover, in recent research, it has been hypothesized that some antibodies induced by H. pylori infection can be involved in the development of autoimmune diseases [3]. Chronic urticaria is a long-lasting skin disease with a complex pathophysiological feature and in a large number of patients with unknown etiology, which is called chronic idiopathic urticaria (CIU). In the recent decade, the role of H. Pylori infection as a main causal factor for CIU has been suggested and a higher prevalence of H. Pylori infection in patients with CIU compared to the general population has been proved [4]. Current summarizing of available studies that evaluated the course of chronic urticaria after proven H. Pylori eradication demonstrates a statistically significant benefit compared to untreated patients or H. Pylori-negative controls without urticaria [5-7]. In some research, antibiotic eradication of H. Pylori led to regression of CIU in up to 100 % of cases [8-10]. Therefore, it seems that the treatment of H. Pylori infection in those with CIU not only can be associated with better outcome of this chronic condition, but can positively influence the patient’s life quality and even increase life expectancy. On the other hand, impairment of the psychological status as well as quality of life following the appearance of H. Pylori-induced chronic disorders, including CIU might be effectively prevented by eradicating this bacterium. Although several studies determined the prevalence of H. Pylori in CIU patients as well as considered the relationship between this infection and clinical features of CIU, few published studies are available regarding influence of H. Pylori eradication on patient’s quality of life. Given this consideration and in an attempt to clarify the possible role of H. Pylori eradication treatment schedule in improvement of life quality in patients with CIU, a clinical trial was performed to assess changes in quality of life in CIU patients following routine anti-H. Pylori regimen in a sample of Iranians.

Material and Methods

Between August and December 2016, 60 patients (11 men and 49 women; mean age, 34.2 years) affected by diagnosed CIU were enrolled in this study. The study patients came from a series of consecutive patients referred to the Dermatology private clinics in Semnan city. The subjects who had received antibiotics within two months prior to the examination were excluded. Patients were also excluded if they were on chronic steroid treatment, were receiving any immunosuppressive medication, and had physical urticaria, cholinergic urticaria, exercise-induced urticaria, a history of atopic diseases and food allergy, or current or recent other serious diseases. On enrollment, each patient completed a standard questionnaire, which included information about demographic factors such as sex, age, educational level, and occupation; and medical history, with particular reference to symptoms of upper gastrointestinal diseases. This study was approved by the research and ethics Committees of Semnan University and all subjects provided their written informed consent before entering the study.

Serum samples were collected from all the patients to examine for the presence of IgG antibody to H. pylori using ELISA method and patients with seropositive results were then scheduled for our clinical trial. The patients received the eradication treatment consisting of bismuth subcitrate 120 mg plus metronidazole 250 mg plus tetracycline 250 mg qid plus omeprazole 20 mg bid (OBMT) at the time of diagnosis for 10-14 days and were then assigned to the treated group (with the negative results of urea breath test (UBT) immediately after the treatment) and the untreated group. In all subjects, quality of life was assessed using the Dermatology Life Quality Index (DLQI). This questionnaire that was first developed in 1994 is a simple 10-question validated questionnaire which has been used in 33 different skin conditions. It consists of 10-questions. Scores range from 0 to 30 and a score of 10 or more indicates quality of life impairment. The patients’ life quality score was determined by DLQI questionnaire immediately before and also after the finishing of treatment protocol to examine treatment effects on patients’ quality of life in the treated and untreated groups.

Data were expressed as mean ± standard deviation (SD) for quantitative variables and were summarized by absolute frequencies and percentages for categorical variables. Continuous variables between the treated and untreated groups were compared using t test or non-parametric Mann-Whitney U test whenever the data did not appear to have normal distribution or when the assumption of equal variances was violated across the groups. Categorical variables across the two groups were compared using the Chi-square test or Fisher’s exact test if required. The changes in the DLQI scale in the two groups following treatment schedule were compared using paired t test. To determine the relationship between the changes of DLQI score and response to H. pylori eradication treatment regimen, multivariable linear regression analysis was used adjusting for possible confounders such as demographic characteristics, education level and medical history. Results of this model were presented as Odds Ratio (OR) and 95% confidence intervals (95% CIs) for OR. P values of 0.05 or less were considered statistically significant. All the statistical analyses were performed using SPSS version 16.0 (SPSS Inc., Chicago, IL, USA).

Results

Eradication of H. pylori was achieved in 30 patients by the quadruple therapy. Baseline characteristics and medical history of treated and untreated patients are presented as Table 1. The two groups were similar in terms of sex ratio, mean age, education level as well as family history of urticaria or allergy. Although the mean of DLQI was unchanged in patients who were treated with H. pylori
Table 1: Baseline characteristics and medical history of study patients

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Treated group (n = 30)</th>
<th>Untreated group (n = 30)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female gender</td>
<td>24 (80.0)</td>
<td>25 (83.3)</td>
<td>0.739</td>
</tr>
<tr>
<td>Age (year)</td>
<td>34.63 ± 11.56</td>
<td>34.33 ± 13.16</td>
<td>0.926</td>
</tr>
<tr>
<td>Education level</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Illiterate</td>
<td>2 (6.7)</td>
<td>0 (0.0)</td>
<td></td>
</tr>
<tr>
<td>Primary level</td>
<td>4 (13.3)</td>
<td>5 (16.7)</td>
<td>0.959</td>
</tr>
<tr>
<td>Secondary level</td>
<td>16 (53.3)</td>
<td>16 (53.3)</td>
<td>1.000</td>
</tr>
<tr>
<td>Academic degree</td>
<td>8 (26.7)</td>
<td>9 (30.0)</td>
<td>0.303</td>
</tr>
<tr>
<td>Family history of urticaria</td>
<td>13 (43.3)</td>
<td>12 (40.0)</td>
<td>0.793</td>
</tr>
<tr>
<td>Family history of allergy</td>
<td>12 (40.0)</td>
<td>9 (30.0)</td>
<td>0.417</td>
</tr>
</tbody>
</table>

Data are presented as mean ± SD or number (%)

Table 2: Multivariate analysis of the relationship between the changes in quality of life score and anti-H. Pylori treatment result

<table>
<thead>
<tr>
<th>Variable</th>
<th>Beta</th>
<th>Standard Error</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Untreated vs. treated group</td>
<td>2.418</td>
<td>1.164</td>
<td>0.041</td>
</tr>
<tr>
<td>Female vs. male</td>
<td>2.173</td>
<td>1.394</td>
<td>0.123</td>
</tr>
<tr>
<td>Advanced age</td>
<td>0.066</td>
<td>0.053</td>
<td>0.215</td>
</tr>
<tr>
<td>Education level</td>
<td>0.489</td>
<td>0.816</td>
<td>0.550</td>
</tr>
<tr>
<td>Family history of urticaria</td>
<td>0.078</td>
<td>1.036</td>
<td>0.940</td>
</tr>
<tr>
<td>Family history of allergy</td>
<td>0.202</td>
<td>4.728</td>
<td>0.966</td>
</tr>
</tbody>
</table>

R square = 0.147

Figure 1: Changes of DLQI quality of life score in treated and untreated group with anti-H. Pylori treatment schedule
eradication treatment (from 28.67 ± 6.79 to 28.70 ± 7.90, p = 0.965), this score was significantly increased in the patients without any evidence of H. pylori eradication (from 27.50 ± 7.22 to 33.20 ± 8.14, p <0.001) (Figure 1). There was also no significant difference in the mean of DLQI score between the treated and untreated group before the treatment protocol (p = 522), whereas this score was significantly higher in the untreated subjects after the treatment (p = 0.034). Multivariable linear regression analysis showed that the negative response to H. pylori eradication regimen in patients with chronic idiopathic urticaria had a relationship with quality of life impairment, whereas positive response to this regimen could prevent unfavorable changes in life quality in these patients (Table 2).

Discussion

Based on the current evidence for a relationship between H. pylori infection and chronic extra-digestive disorders, the European Helicobacter Study Group consensus 2007 recommended the eradication of this infection in affected patients. Lastly, one or few published reports have documented associations between H. pylori infection and autoimmune or inflammatory disorders, but these are only descriptive in nature [11]. In the present study, we conducted a clinical trial that examined changes in quality of life of patients with seropositive results of H. Pylori infection and who received anti-H. Pylori regimen and compared it between treated and untreated patients. Our study first showed a partially low success rate of clinical remissions of CIU after eradication therapy in patients with H. Pylori infection and half of the patients were categorized in the untreated group after the two-week anti-H. Pylori treatment. Although some early studies had shown a high success rate of clinical remissions of CIU following H. Pylori eradication regimens [12-15], some other recent studies failed to support the therapeutic effects of H. Pylori eradication for CIU [16-19]. In a study by Yadav et al. H. Pylori associated gastritis was present in 70.58% of CIU patients, out of whom 81.25% responded to eradication therapy and thus the response of H. Pylori eradication therapy in infected patients was significant [20]. In another study by Pliego et al. in the group with CIU, there were 52.8% of patients infected with H. Pylori, and in the control group only 11.1% [21]. Differences in eradication regimens may be associated with the various types of administered antibiotics, the dose of antibiotics and/or the duration of the treatment. It seems that the eradicating H. Pylori infection in CIU subjects with our studied routine, quadruple therapy for two weeks is not a standard regimen among our population with unacceptable response rate. It may be related not only to the virulence and resistance of the organism, but also on host and environmental factors [22,23]. Moreover, because in each population, especial drug regimens may be approved by the health insurance system for the eradication of H. Pylori [24,25], those approved regimens can be useful for eradicating H. Pylori in that population.

One of the issues, which was not addressed in previous studies, was the improvement of quality of life in patients who were treated with H. Pylori treatment schedule compared to those who remained untreated. In fact, H. Pylori eradication in our trial was in parallel to improvement of patient’s quality of life, but may not be dependent on the rate of H. Pylori eradication. It has been previously confirmed that the chronic forms of urticaria often adversely impact on quality of life. In a study by Poon et al [26], the patients with CIU without concurrent physical urticaria suffered moderate quality of life impairment whereas, the patients with CIU with concurrent delayed pressure urticaria suffered significantly higher quality of life impairment. In their study, disability in the CIU group based on the indices of DLQI questionnaire was greatest in the dimensions of work/study, symptoms/feelings and leisure. Thus, we think that although H. Pylori eradication using quadruple regimen for two-weeks may not be accompanied with low response rate, its high positive influence on improving different aspects of quality of life, especially on physical function and work status in treated patients is expected. However, for confirming the beneficial effects of H. Pylori eradication regimens on quality of life in CIU patients, more trials with the use of especial validated quality of life questionnaires on larger sample sizes is recommended. Also, according to the critical role of H. Pylori infection in impairment of quality of life affected subjects; regular diagnostic workup of patients with CIU should be considered.

References


