Comparision of the Cag A+ Helicobacter Pylori Frequency between Rosacea Patients and Healthy Control Group

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Background: Rosacea is a chronic skin disease with an unknown etiology. Some reports have suggested an increased prevalence of Helicobacter pylori infection in rosacea patients, but it is controversial. This study was designed to compare the prevalence of H. pylori and serological cag A+ species between the rosacea patients and the healthy control group.

Methods: This case-control study was performed on 30 rosacea patients and 60 healthy individuals as the control group. The results were reported based on clinical and serological enzyme-linked immunosorbent assay IgG antibody and cag A examination in two groups.

Results: Mean age of the rosacea patients and the control group was 45.8 ± 14.05 and 41.4 ± 12.3 years respectively and 56.7% of the patients and 86.2% of controls were infected by H. Pylori (P=0.002). Furthermore, cag A+ was seen in 53.5% of the patients and 50% of the controls (P=0.23).

Conclusion: This study showed a reduction in the prevalence of Helicobacter Pylori in acne rosacea patients compared to other studies in the world. The authors believe that it is necessary to conduct more studies to demonstrate the exact prevalence of this organism in Iranian rosacea patients.

Keywords: helicobacter pylori, rosacea, Cag A, antibody

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INTRODUCTION

Helicobacter Pylori (H. pylori) is a gram negative, spiral and flagella bacteria, which colonizes the stomach mucosa and has an important etiologic role in gastric diseases [1]. H. pylori is one of the most common pathogens affecting humans, infecting approximately 50% of the world's population. Several studies have suggested that there is a relationship between this organism and a number of extra gastric diseases such as ischemic heart disease, idiopathic thrombocytopenic purpura, iron deficiency anemia, etc [2]. Recent evidence suggests that H. pylori plays a role in the progress of some of the skin diseases; for example, Raynaud's disease, rosacea, prurigo nodularis, atopic dermatitis and chronic urticaria [3]. Review of the available literature shows that the role of H. pylori in cutaneous diseases is still a controversial subject and the best evidence comes from studies that investigate the disappearance of skin disease in many patients with H.Pylori infection after careful eradication of the organism [3,4]. Rosacea is a skin disorder affecting the face and chest and develops most commonly between the third and the sixth decades of life. It is characterized by erythema, telangiectasia and recurrent flushing during this chronic inflammation and skin typically develops papules, pustules and swelling. Ocular involvement occurs in 3-58% of the patients with skin changes and may lead to blindness [5]. The etiology of rosacea is unknown and the disease is usually accompanied by gastrointestinal symptoms and favorably responding to the treatment with

antibiotics [6,7-11]. Some studies have reported a high prevalence of H.Pylori infection in acne rosacea patients. Other studies have reported a decrease in the severity of the lesions of acne rosacea after H. Pylori eradication [11]. The etiopathogenesis of rosacea is still controversial [3,4].

Several H. pylori virulence factors are more common in diseases associated this microorganism. The cag PaI is a group of genes including those that encode a secretion system through which a specific protein, cag A, is translocated into epithelial cells. Cag A interferes with host cell signaling, causing proliferation and cytoskeletal changes. The secretion system also induces a pro-inflammatory cytokine response, which results in enhanced inflammation. Both cag A+ and cag A− Strains are present in H. pylori population in all parts of the world. The cag A+ is an important helicobacter pylori molecule that signals the host [1,12-16]. The aim of this investigation was to compare the frequency of cag A+ H. pylori between rosacea patients and healthy controls.

PATIENTS AND METHODS

This case-control study was carried out on 30 acne rosacea patients and 60 healthy controls in Farshchian Hospital, Hamedan (west of Iran), from 2008 to 2009. The control group consisted of 30 health workers of the hospital staff who were randomly selected from residents, interns and nurses and also 30 individuals from the general population who were matched with rosacea patients in terms of age and sex. The reason for selecting this type of control group was the different prevalence of H. pylori between health workers and the general population. Furthermore, we wanted to compare these two groups.

Subjects were excluded from the study if they had a history of peptic ulcer and had received standard treatment for eradication of H. pylori in the recent 6 months. An Informed consent was signed by all participants and checklists were used for demography, present and past medical history, clinical signs and rosacea types. Furthermore, the sera of the patients and controls were tested for H. pylori IgG antibody and cag A by immunosorbent Assay (Diaper Kit, Italy). According to manufacturer's instructions, an H.Pylori IgG antibody titer>15 microgram per milliliter and a cag A antibody titer>5 microgram per milliliter were considered positive. Pearson, chi-square and independent t-test were utilized for data analysis, using SPSS software.

RESULTS

The study group consisted of 30 cases with rosacea including 25 (83.3%) females and 5 (16.7%) males. The mean age of the patients was 45.8 ± 14.05 years. The control group consisted of 45 (75%) females and 15 (25%) males. No statistically significant differences were seen between the study and the control group regarding age and sex and they were matched. The duration of disease (rosacea) was between 2-120 months in patients. H. pylori was present in 17 (53.3%) patients and 52 (86.7%) controls. Cag A was positive (more than 5µg/ml) in 16 (53.3%) cases and 30 (50%) healthy controls. Mean cag A antibody was 31.4 ± 34.2 and 19.60 ± 25.47 in rosacea patients and healthy controls, respectively. Although the number and mean numbering of cag A positivity were high in the study group, no significant difference was seen between the two groups (Table 1).

Mean level of serum anti H. pylori IgG in the health workers and the general population was 32.2 ± 24.02 and 45.52 ± 21.35, respectively. There was no significant difference in this comparison.

DISCUSSION

Recent reports have suggested an increased prevalence of H. pylori infection in rosacea patients. These reports have provided sufficient evidence to support a positive association or relationship between rosacea and the presence of H. pylori [7-9,11,18]. Some other studies have found no significant relationship between rosacea and H. pylori infection [6,19,20]. In the present study, we also found no correlation between H. pylori and rosacea;

Table 1. Comparison between the frequency of cag A positive H. pylori in rosacea patients and healthy controls

Group	Cag A+ N (%)	Cag A- N (%)	X^2	P. value*
rosacea patient	16 (53.3)	14 (46.7)		
healthy control	30 (50)	30 (50)	1.43	P = 0.23
Total	36 (45)	44 (55)		

*Pearson chi-square test

on the other hand, we detected a low frequency of H. pylori in rosacea (56.7%) in comparison with the healthy controls (86.7%). The frequency of cag A positive H. pylori in rosacea patients and the healthy controls was 53.3% and 50% respectively which showed was no significant difference (P = 0.23). Mean cag A antibody was 31.4µg/ml in rosacea patients and 19.6µg/ml in healthy controls and the difference was not significant (P=0.15). Therefore, it is suggested that cag A has no role in the pathogenesis of acne rosacea. In Poland, Szlachcic et al, reported that the prevalence of cytotoxic associated cag A positive strains was 67% in rosacea patients and 32% in the healthy control group. They also reported acne rosacea as an extra gastric manifestation of H. pylori infection that was mediated by cytotoxins and cytokines [6]. The differences between this study and ours may be due to differences in H. pylori in two geographical areas.

In conclusion, this study showed that the prevalence of cag A positive in rosacea patients was no more than the healthy control group. Since the prevalence of this organism is not known in our country in the general population, this bias could have affected our conclusion.

CONFLICT OF INTERESTS

The authors had no conflict of interests in this article.

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