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## Is Eradication of *Helicobacter pylori* an Alternative Treatment for Rosacea?

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**Abstract:** Several reports have focused on either the increased prevalence of *Helicobacter pylori* infection or lack of association in patients with rosacea. In this study, 19 patients with rosacea and 38 healthy controls were investigated for seropositivity to *Helicobacter pylori* by ELISA and the effects of eradication treatment on clinical improvement were monitored. Statistical analysis was performed using Student's t test, Mann-Whitney U test, Wilcoxon signed ranks test, McNemar's test,

and chi-squared and correlation tests.

No correlation was detected between the degree of severity of disease and *Helicobacter pylori* positivity. Our results suggest that *Helicobacter pylori* may be an aggravating factor, but it is not the direct cause of rosacea.

**Key Words:** rosacea; etiology; *Helicobacter pylori*; treatment

### Introduction

Rosacea is a chronic dermatologic disease of unknown cause which occurs in midlife, affecting women more than men. In addition to several other suspected endogenous and exogenous factors, *Helicobacter pylori* (HP) infection has recently been proposed to be related to its etiology (1,2). The aim of this study was to investigate whether HP eradication reduces the severity of rosacea and thus whether there is causal relation between HP and rosacea.

### Materials and Methods

Twenty-one rosacea patients and 38 healthy controls referred to the dermatology department of Süleyman Demirel University School of Medicine were included in the study. Clinical and histopathological findings confirmed the diagnosis of rosacea. Patients using topical and systemic drugs within two and four weeks, respectively, as well as those with abnormal complete blood count and biochemical analysis including fasting blood sugar, liver and renal function tests were excluded.

Dermatological examination was performed before and after treatment to determine the degree of erythema and count the number of individual types of lesions (papules, pustules and telangiectasias) using a scale from 0 to 4 according to Erdoğan's report (3). The total score

of severity ranged between 0 and 20 for each patient. All patients were also examined by the ophthalmology department.

The patient group was treated orally with amoxicillin (2 g/day), clarithromycin (1 g/day), and lansoprasole (60 mg/day) for two weeks. During treatment, patients were allowed to use topical emollients if necessary, but not any other topical or systemic medication. Patients were followed up for recurrences at the end of second week and three months after cessation of treatment. Two patients were excluded because they missed the third month follow-ups.

Serum samples obtained from the controls and the 19 patients initially as well as three months after cessation of treatment in the rosacea group were stored at -20°C until the serological evaluation. In the Serology Laboratory of the Department of Microbiology, commercial micro ELISA test systems were used to detect specific immunoglobulin (Ig) G, A, and M antibodies against HP. GAP<sup>R</sup> (Gastritis and peptic ulcer test/Biomerica), which aids in the quantitative evaluation of specific IgG, A, and M in human serum for diagnosis of infection caused by HP, was used in this study.

Student's t test, Mann-Whitney U test, Wilcoxon signed ranks test, McNemar's test, chi-squared and correlation tests were used for statistical analysis.

**Results**

The patient group consisted of 19 subjects with rosacea including 17 women (89.5%) and 2 men (10.5%). Of the 38 healthy individuals in the control group, 33 (86.8%) were women and 5 (13.2%) were men. The ages ranged from 34 to 77 (mean: 50.5±9.7) in patients and from 32 to 73 (mean: 48.2±9.5) in the control group. The duration of the disease was between one month and 20 years with a mean of 56.4±59.6 months. Four patients complained of gastrointestinal pain and discomfort; three of them had additionally given anamnesis of peptic ulcer. Ocular findings of rosacea were detected in five patients.

The Ig seropositivities did not differ between the patient and control groups or within the patient group before and after treatment, except for IgA positivity, which was reduced in the latter (Table 1). No correlation was found between the duration and severity of the disease and Ig seropositivity.

The mean scores of erythema, papules and pustules except for telangiectasias significantly decreased at the end of treatment (Table 2). However, in ten patients whose IgA scores changed from positive to negative after treatment, the clinical improvement was no better than that of the rest of the group. In addition, there was no correlation between clinical improvement and Ig decrease.

The disease recurred in four of the 19 patients and the rest had maintained their improved condition with HP eradication treatment at the 3-month follow-ups.

**Discussion**

Recent reports have suggested an increased prevalence of HP in rosacea patients. Rosacea has been associated with gastrointestinal complaints that have been treated effectively with combination drug regimens eradicating HP (1,2,4). Serological tests for circulating HP antibodies are noninvasive, sensitive, and specific indicators of HP declining with successful treatment (1,5). IgG antibodies have been used widely for detecting HP infection and IgA antibodies as complementary, but the specificity of IgA antibody tests has been higher than that of IgGs (5,6). In addition, it was reported recently that IgA antibodies were more convenient indicators of HP status than were IgG antibodies (7).

Rebora et al. (1) found 45% positivity for IgG or IgA and 35% for IgM antibodies against HP in rosacea patients. Powell et al. (2) reported 95% and Son et al. (8) 65% seropositivity for HP. However, in the controlled studies of Sharma (9) and Jones (10), the seropositivities were 48.9% for IgG, 26.7% for IgA and 23% for IgM, similar to the levels in healthy controls. Utaş et al. (11) found no differences between patients and controls in terms of the means of IgG and IgA

	Control group		Pretreatment patient group		Posttreatment patient group	
	No	%	No	%	No	%
IgG	23	60.5	12	63.2	9	47.4
IgA	18	47.4	14	73.7*	4	21*
IgM	6	15.8	2	10.5	2	10.5

Table 1. Comparison of seropositivity percentages between patients and controls.

\*p=0.002

	Pretreatment	Posttreatment	p
Erythema (mean±SD)	2.94±1.02	2.05±1.12	<0.05
Papules (mean±SD)	2.57±1.21	1.00±1.20	<0.05
Pustules (mean±SD)	0.42±0.69	0	<0.05
Telangiectasias (mean±SD)	1.26±1.14	1.21±1.13	
Total score (mean±SD)	7.21±2.89	4.26±2.68	<0.05

Table 2. The lesion scores of patients before and after treatment.

seropositivities. Our results are in accordance with previous studies (9-11) detecting a similarity in antibodies against HP between rosacea patients and controls.

The effective response to eradication of HP in rosacea was proposed by Son (8), Diaz (12), Kolibasova (4) and Utaş et al. (11). However, in a randomized clinical trial treatment of HP infection with 14-day therapy using clarithromycin and omeprazole, no beneficial effect on the symptoms of rosacea was detected (13). In our study, a triple regimen with amoxicillin, clarithromycin, and lansoprasole was preferred for HP eradication. Lansoprasole benefits peptic ulcer and gastritis, whereas amoxicillin and clarithromycin have been effective against HP. Clarithromycin has also been proposed to have antiinflammatory capabilities (14). The decrease in total severity scores during the posttreatment period suggested that HP may be responsible for the symptoms of rosacea. Nevertheless, although there was clinical

improvement after treatment, curing HP did not clear rosacea completely and we did not find a statistical correlation with Ig changes, either. However, there have been different regimens for eradicating HP infection in several studies, which might be responsible for the differences in cure rates.

Our results suggested that HP may be an aggravating factor, but it is not the direct cause of rosacea. Further controlled studies of a larger rosacea population with active gastrointestinal complaints are needed to resolve this controversy.

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