Relationship between Disease Activity and *Helicobacter pylori* Infection in Patients with Vitiligo

Sir,

Vitiligo is a common dermatologic disease with a debated etiology. Infectious agents have been claimed to trigger disease development through antibody production, molecular mimicry, cytokine production, major histocompatibility complex activation, regulatory T-cell dysfunction, immune complex formation, and chronic inflammatory damage.[1]

Helicobacter pylori (H. pylori) is one of the most common pathogens affecting humans, infecting approximately 50% of the world's population.[2] The prevalence of infection varies in different governorates in Egypt. Reported prevalence in Delta is approximately 70%.[3] Several immune-mediated skin disorders have been considered to have a relationship with *H. pylori* infection.

The aim of the present study was to evaluate if there is a relationship between active vitiligo and *H. pylori* infection.

Seventy-five patients with non segmental vitiligo were selected [51 (68%) cases with active disease and 24 (32%) with stable disease]. Seventy-five healthy, age and gender- matched subjects were enrolled as a control group. A written consent form approved by local Ethical Research Committee was obtained from every participant prior to study initiation.

The diagnosis of vitiligo was made on the basis of typical clinical features and Wood's light examination. All studied cases were either newly diagnosed or old patients with completely depigmented lesions. Assessment of disease activity was done according to the Vitiligo Disease Activity (VIDA) score.[4] Clinical data of selected cases and controls are summarized in Table 1.

Patients with dermatological diseases other than vitiligo, with autoimmune diseases or malignancy, those who took previous *H. Pylori* eradication treatment, and those using NSAIDs, antibiotics, or proton pump inhibitors in the last month before the study were excluded.

Diagnosis of infection was done by stool antigen test (SAT) which is a noninvasive method with good sensitivity and specificity, in global meta-analysis, in the diagnosis of *H. Pylori* infection.[5] Measurement of serum IgG antibody was done to avoid the influence of different factors on SAT positivity.[6]

H. pylori specific IgG antibody in serum and SAT were detected by enzyme-linked immunosorbent assay (ELISA). As the presence of antibody may denote active or past infection, included cases with both positive SAT and IgG were designated as having active infection.

For SAT, level <20 ng/ml denotes negative result and level >20 ng/ml denotes positive result.[7]

For *H. pylori* IgG in serum, level <20 u/ml denotes negative result and level >20 u/ml denotes positive result.[8]

Data were collected, tabulated, and statistically analyzed using a personal computer with SPSS version 11 software (SPSS Inc, Chicago, Illinois, USA). Fisher's exact test was used for comparison of qualitative variables in 2 × 2 tables when expected cell count of more than 25% of cases was less than 5. Chi-square test (χ^2) was used to study the association between two qualitative normally distributed variables. Mann–Whitney U test was used for comparison between two groups not normally distributed having quantitative variables. Differences were considered statistically significant with $P < 0.05$.

H. pylori infection was positive in 49 (65.3%) vitiligo cases compared with 18 (24%) in the control group ($P = 0.001$) [Figure 1]. In cases, infection was significantly associated with high VIDA score ($P = 0.009$) and with active disease ($P = 0.02$) [Table 2].

H. pylori may alter cellular immunity resulting in loss of self-tolerance and autoimmune destruction of melanocytes. This autoimmune reaction results from higher levels of C-reactive protein, chronic inflammatory condition, autoantibody production, and antigenic stimulation.[9] In addition, local inflammation of gastric mucosa leads to release of inflammatory cytokines [tumor necrosis factor (TNF)-α, interleukin (IL)-6, IL-8, and IL-1β] that produce systemic inflammation which subsequently affect skin microenvironment with loss of functional melanocytes.[10]

The current study demonstrated significant association between active vitiligo and *H. pylori* infection. On the contrary, Dogan *et al*. reported absence of association between *H. pylori* positivity and vitiligo activity score.[11] Çakmak *et al*. showed no significant relationship between *H. Pylori* SAT positivity and activity of vitiligo.[12]

In the current work, positive cases for *H. Pylori* infection received eradication therapy consisting of omeprazole 20 mg BID, clarithromycin 500 mg BID, and metronidazole 500 mg BID for 14 days.[13]

Follow-up 3 months later showed suppression of disease activity in (11/49) cases.

Non responding cases regarding disease activity may be explained by the multifactorial etiology of vitiligo.

Table 1: Clinical data of selected cases and control subjects

Variable	Cases (*n*=75)	Controls (*n*=75)	Test and *P*
Gender			U=1.15, *P*=0.2
Males	34 (45.3%)	9 (36%)	
Females	41 (54.7%)	16 (64%)	
Age (years)			χ^2=0.66, *P*=0.4
X±SD	30.1±16.5	33.5±14.6	
Range	11-64	13-57	
Disease duration (months)			
X±SD	37.8±41.6		
Range	1-180		
Lesion extent (%)			
X±SD	27.1±25.2		
Range	5-90		
VIDA Score			
X±SD	2.37±1.61		
Range	−1-4		
Activity			
Active	51 (68%)		
Inactive	24 (32%)		

U: Mann-Whitney test, χ^2: Chi-square test, X±SD: Mean±standard deviation, VIDA: Vitiligo Disease Activity

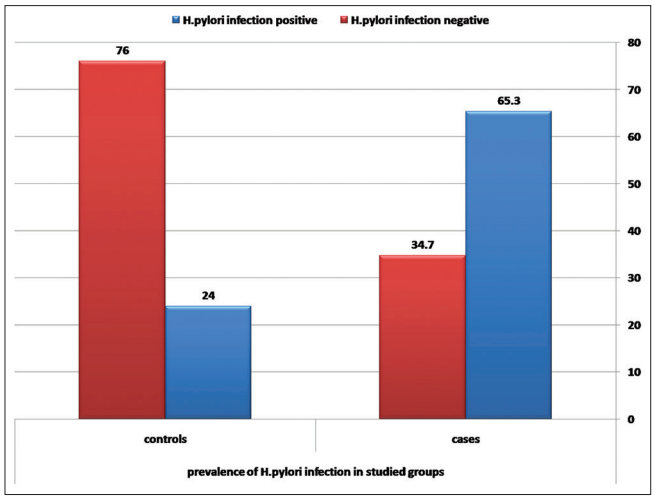

Figure 1: Prevalence of *H.pylori* infection in studied cases and controls

Table 2: Association between *H. pylori* infection and disease activity

Variables	*H. pylori infection* in studied cases		Test and *P*
	Positive (*n*=49)	Negative (*n*=26)	
VIDA Score			χ^2=2.6,
X±SD	3.03±1.34	2.02±1.63	*P*=0.009*
Disease activity			χ^2=5.4,
Active	41 (83.6%)	15 (57%)	*P*=0.02*
Inactive	8 (16.4%)	11 (43%)	

*Significant, χ^2: Chi-square test, X±SD: Mean±standard deviation, VIDA: Vitiligo Disease Activity

Therefore, it may be useful to search for *H. Pylori* infection in patients with vitiligo, especially in those with active disease. Clinical trials to evaluate the effect of *H. Pylori* eradication in infected vitiligo patients are also needed.

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Conflicts of interest

There are no conflicts of interest.

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