

# ***Helicobacter Pylori* Seropositivity among Patients with Hyperemesis Gravidarum**

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## **Abstract**

**Background:** There are also reports from other parts of the world indicating the presence of significant association of *H. pylori* infection and hyperemesis gravidarum, a bothersome condition that affects pregnant women.

**Objective:** To test the hypothesis that whether *H. pylori* infection is associated with hyperemesis gravidarum among Iranian H.P carriers.

**Methods:** From November 1999 to February 2001, we enrolled 54 pregnant women with hyperemesis gravidarum and 53 asymptomatic pregnant women (control group) in a prospective study. Using a specific serum IgG against *H. pylori*, the seroprevalence of *H. pylori* infection was determined in both study and control groups.

**Results:** Serologically positive *H. pylori* infection was detected in 44 (82%) out of 54 patients with hyperemesis gravidarum and 29 (55%) out of 53 asymptomatic pregnant women. The prevalence was significantly ( $p < 0.01$ ) higher in those with hyperemesis gravidarum than those in the control group. The mean  $\pm$ SD of the IgG titer in the study group ( $69.7 \pm 77.5$ ) was significantly ( $p < 0.01$ ) more than that of the control group ( $34.5 \pm 47.8$ ).

**Conclusion:** *H. pylori* infection may cause hyperemesis gravidarum. **Iran J Med Sci 2002; 27(2):67-69**

**Keywords** · *Helicobacter pylori* · seroprevalence · serology · hyperemesis gravidarum · pregnancy.

## **Introduction**

**N**ausea and vomiting during pregnancy has a pervasive detrimental impact on women's family, social and professional life.<sup>1</sup> Vomiting affects more than 50% of women in their early pregnancy and nausea affects the majority of cases.<sup>2</sup> The condition is associated with younger ages, heavier maternal weight, primigravidas, and a history of previous emesis in multiparous individuals. Hyperemesis gravidarum (HG) is the most severe form of this disorder, occurring in 1-2% of all pregnancies. It is accompanied by weight loss, ketonemia, electrolyte imbalance, and profound volume depletion. The typical onset is between 4 and 8 weeks of gestation, which could last for up to the 14<sup>th</sup> to 16<sup>th</sup> weeks.<sup>3</sup> Elevated serum

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## *Helicobacter pylori* seropositivity among patients with hyperemesis gravidarum

**Table 1:** Baseline clinical and demographic findings of the study and control group : Baseline clinical and demographic findings of the study and control group

Parameters	Hyperemesis (n=54)	Controls (n=53)
Mean±SD Age (Yrs)	25.1±5.8	25.7±6.0
Primigravida (%)	31 (57)	31 (58.5%)
Multigravida (%)	23 (43)	22 (41.5%)
Mean Gestational Age (wks)	11.5	13.5

None of the measured parameters significantly differs between two groups.

steroid hormones and HCG concentrations are assumed to play a role in this condition. The high incidence of hyperemesis in primigravidas who exhibit high serum estradiol concentrations, particularly during early pregnancy, could be a further indication of the causative role of elevated steroid hormones in hyperemesis. As a result of fluid accumulation caused by elevated level of steroid hormones in pregnant women, a shift in pH can also occur. Consequently, a change in gastrointestinal tract pH could hypothetically result in the manifestation of a subclinical *H. pylori* infection.<sup>3</sup> The development of *H. pylori*-specific serum antibody test allows screening for the infection. Being available, cheap and non-invasive, it is possible to detect *H. pylori* infection in pregnant women and newborns.<sup>3</sup>

We conducted this study to determine the possible existence of any association between *H. pylori* infection and hyperemesis gravidarum.

### Patients and Methods

Fifty-four pregnant women who referred to the obstetrics clinics affiliated to Shiraz University of Medical Sciences with diagnosed hyperemesis gravidarum and 53 normal pregnant women of matched gestational age were entered into this prospective study. The criteria for hyperemesis were pernicious vomiting (>3 times/day), weight loss>3 kg, positive test for ketone in urine, exclusion of other disease conditions that may cause vomiting such as thyroid disease, infections, multiple pregnancy, trophoblastic disease and psychosocial disorders.

Inclusion criteria for the study group (n=54) included hyperemesis gravidarum, age of 15-38 years, weight within 20% of normal weight for height at the beginning of the pregnancy, gestational age between 7 and 16 weeks, and an unremarkable course of pregnancy. Inclusion criteria for the control group (n=53) were those used for the study group, except hyperemesis gravidarum. The control individuals were recruited from an outpatient clinic during their routine examinations in

pregnancy. Relevant data of the patients in both groups are presented in Table 1.

Venous blood was taken at the first clinic visit after the patients had given their written consents. Specific serum antibodies against *H. pylori* were measured by an indirect enzyme-linked immunosorbent assay (ELISA) technique (*H. pylori* test, pharmaceutical section of Tehran University, Tehran, Iran). An IgG index of >20 Au/ml (Arbitrary unit per milliliter) was considered as positive, and one <15 Au/ml as negative. IgG levels between 15-20 Au/ml were considered suspicious, warranting a repeat test within the next 2-4 weeks. The results were tested for statistical significance by  $\chi^2$  test and student t-test. P values of <0.05 were regarded as statistically significant.

### Results

There was no statistically significant difference in baseline parameters between study and control groups (Table 1). Forty-four out of 54 individuals in the study group, and 29 out of 53 in the control group were positive for *H. pylori* infection. This translates to seroprevalences of 82% (95% CI: 71%-92%) and 55% (95% CI: 41%-68%) in study and control groups, respectively (p<0.001).

The mean±SD of the IgG titers was significantly (p<0.01) higher in the study (69.7±77.5 Au/ml) than in the control group (34.5±47.8 Au/ml). No sample had an IgG titer between 15 and 20 Au/ml. No correlation was found between the IgG titer and gestational age, maternal age, gravidity or parity.

### Discussion

Our findings suggest an association between *H. pylori* infection and hyperemesis gravidarum. For normally occurring surplus steroids during pregnancy, extracellular volume expands. This also leads to a change in gastrointestinal pH. This, in turn can activate some latent strains of *H. pylori* bacteria so that the disease manifestations would become apparent.

Fluid replacement, administration of vitamin B<sub>6</sub>, metoclopramide, and bed rest are routinely used for hyperemesis gravidarum usually without any significant improvement.<sup>3-6</sup> This is not surprising since none of these drugs affects *H. pylori* infection.

In our study, we relied on the IgG assay and did not try to collect any tissue specimen due to ethical issues.<sup>4</sup> On the other hand, endoscopy is not only an expensive but also invasive procedure, particularly for pregnant women.

Most of the individuals participating in this study belonged to a mid/low-socioeconomic class.

Whether poor hygiene or other etiologic factors contributed to a higher rate of *H. pylori* infection in our study population is not still well documented. There are two other studies which support our assumptions.<sup>3,4</sup>

One of the important aspects of *H. pylori* infection during pregnancy is its transmission to the fetus.<sup>3,4</sup> Therefore, it might be reasonable to eradicate the *H. pylori*, as well as the hyperemesis gravidarum with suitable medications. We did not follow our patients for treatment and fetal outcome. Recently the Center for Disease Control and Prevention has approved administration of metronidazole during all trimesters of pregnancy. Alternative medications such as amoxicillin and omeprazole have been used but their efficacies are still to be proved.<sup>3,4</sup>

### Acknowledgements

We would like to thank Dr. N. Shokrpour, for reviewing the manuscript, and Dr. N. Akhtar Danesh, for his help in statistical analysis. This study was supported financially by a grant from Shiraz University of Medical Sciences (Grant No.79-960).

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