Original article

Seroprevalence study of *Helicobacter pylori* infection among visitors of cardiac patients in Razi hospital in Ahvaz, Iran

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Abstract

Introduction and objective: Seroepidemiological studies have shown a significant difference in seroprevalence of *Helicobacter pylori* (HP) and its outcome. The aim of this study was to assess the prevalence of HP infection in a normal population (patient's visitors) and to determine frequency of some risk factors of this infectious agent.

Materials and methods: Cardiac visitors in Razi hospital in Ahvaz were tested for the presence of anti HP-IgG by ELISA assay. Frequency of risk factors for HP acquisition in HP seropositive individuals was studied.

Results: The studied subjects included 96 persons with mean age of 58.03 ±11.53 years in whom 52% were females. Fifty five (61.1%) persons presented a positive result for anti HP-IgG test

Conclusion: HP Seropositivity was not affected by age, sex and residential area. Crowding was the most important risk factors for HP acquisition.

Keywords: Seroprevalence, *Helicobacter pylori*, Cardiac patients, HP-IgG, Ahvaz

Introduction

Helicobacter pylori (HP) is one of the most common bacterial infections of human [1,2]. More than 50% of the world's population is infected with HP, but the majority of them remain asymptomatic throughout life [1-3]. This Gram-negative bacterium infects the human gastric mucosa and causes long term colonization and inflammation [4]. In a sub-population of infected individuals, long term inflammation results in peptic ulcer disease and gastric malignancy [1-4]. The main risk factors for HP acquisition are: age, low socioeconomic status, crowding and poor hygiene [5]. The simplest tests and as accurate as other diagnostic methods for ascertaining HP status are serologic assays measuring specific IgG level in serum by ELISA or western blot [5].

Seroepidemiological studies have shown a significant difference in seroprevalence of this infection and its outcome (related diseases such as

gastrointestinal disorders, malignancies and cardiovascular diseases) between developed and developing countries [3-12]. A possible explanation for this difference may be that many factors are involved; these could relate to specific bacterial virulence factors, to differences in the host response to HP antigens, to differences in the environment, water contamination, opportunities for hand washing, or to a combination of these, which might alter the processes of infection [3]. The burden of co morbidity or co infection may affect the outcome of colonization by HP [3-5]. The objective of this study was to assess the prevalence of HP infection in a normal population (patient's visitors) and to determine frequency of some risk factors of this infectious agent.

Materials and methods

In this descriptive study in Ahvaz, a city South West of Iran from 2004 to 2005, visitors of cardiac patients in Razi hospital affiliated to Ahvaz Jundishapur University of Medical Sciences were evaluated for presence of anti HP-IgG. Exclusion criteria were: clinical evidence of cardiac, gastrointestinal, or any other Helicobacter related diseases. A questionnaire including demographic characteristics and other related variables was fulfilled for each person.

Five milliliters of clotted blood was obtained from each individual for specific anti HP-IgG by ELISA method with sensitivity of 90%-95% and specificity of 95%-98%. Commercially available IgG antibody tests for HP were conducted according to the manufacturer's instructions (Biokit, Finland). Blinded duplicate specimens were included (10%) to assess the reproducibility of the laboratory tests (Serum was frozen in glass vials and stored at -20°C). IgG titer of 1.1μ/ml or more was considered as positive, 0.9-1.1μ/ml was doubtful and lower than 0.9μ/ml as negative (Biokit). The data were analyzed by SPSS software version 12 using descriptive statistics, chi squared test and Fisher exact test. Difference with P value less than 0.05 were considered significant.

Results and discussion

The studied subjects included 96 persons with mean age of 58.03+/-11.53 years in whom 52% were females. Fifty five (61.1%) persons presented a positive anti HP-IgG. The rate of seropositivity in age groups was as follows: 31% in <30 years, 35% in 30-60 years and 34% in >60 years. There was no significant difference between age groups (P>0.05). As shown in table 1 frequency of seropositive person in crowded families was significantly more than uncrowded families (P<0.05). Patients living in rural areas were as much infected as patients in urban areas. Patients with history of previous gastrointestinal disorders had higher seropositivity rate than patients without this past medical history (54% vs.22%).

The data presented in this paper (61.1%) indicate that *H. pylori* seroprevalence is higher than it's prevalence in developed countries (30%), but lower than the data from developing or undeveloped countries (80%) [5]. The prevalence of history of gastro duodenal disorders was similar to estimates of population prevalence in other countries [3]. A high prevalence of gastro duodenal diseases has been reported from Sudan [13] and Nigeria [14], but there is older evidence that prevalence may be low in some other countries [15]. In this study, our finding about seropositivity in rural and urban areas is not in consistent with other studies which have showed significant differences in HP seroprevalence between rural and urban populations [15].

Table 1: Frequency of risk factors of *Helicobacter pylori* (HP) infection among patient's visitors in Razi hospital, Ahvaz, Iran

Risk factors		HP seropositive	HP seronegative	P value
Age (year)	<30	17	12	0.52
	30-60	19	13	0.42
	>60	19	16	0.40
Sex	Male	27	22	
	Female	28	19	0.40
Family size (population)	<5	10	24	
	>5	45	17	0.0001
Residency	Rural	15	13	
	Urban	40	28	0.40
Total		55	41	

In the region of this study, the rural area with low socioeconomic status was expected to have higher HP prevalence than urban area. The reason for this difference is not clear, but, may be due to the fact that our samples were chosen among visitors who were relatives of admitted patients in same environmental situation.

The present study showed that seroprevalence of HP was not associated to age. This finding is not consistent with previous studies [1-5]. We assume that in the area of study most infections occur in childhood via drinking water and continues through the life. As reported in most previous studies, we found that sex is not an important risk factor for HP acquisition [1-5,13-15]. Crowding was the most important risk factor in our study. Families with more than five members were at a higher risk for HP infection. This finding is similar with previous studies in the published papers [4,5]. Future large study in normal population is needed for better results.

Conclusion

In this study HP seropositivity was not affected by age, sex and residential area. Crowding was the most important risk factor for HP acquisition.

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