Sero-prevalence of *Helicobacter pylori* Infection in Misan provenance, Iraq

Omar M Kassid[1], Redha AH Alhashimi[2], Haider SQ Alhelfi[3], Rasha KA Alsaad[4*]

[1] Teacher at Misan University , Faculty of Medicine

[2] Assistant professor at Misan University , Faculty of Medicine, Department of Pharmacology

[3] Assistant professor at Misan University , Faculty of Medicine, Department of Medicine

[4] Assistant lecturer at Misan University, Faculty of Medicine, Department of Microbiology

Corresponding author: masterr78@ymail.com, Misan , Iraq , 009647733962400

Abstract

H. Pylori have been found all over the world, among different age group with approximate estimate about 50% of the population. The prevalence were highest among underdeveloped countries nearly as high as (80-95%). Our aim is to determine the prevalence of *H. pylori* infection among people living in Missan provenance in Iraq. 497 participants aged 10 years and above were randomly recruited into the study from December 2018 to May 2019. The study was led at Al Sadder General Hospital in Misan, Iraq. The diagnosis is based on the detection of *H. pylori* antibodies using rapid antibody-antigen based immunoassay strips. Among 497 subjects in our study, 275 (55.7%) has positive serology for *H. pylori* infection, the infection was more prevalence among females and is increase with age.*H. pylori* are highly prevalent among people of Misan provenance. The infection was more prevalent among female and shows some correlation with age.

Keywords: H. pylori, Misan, Seroprevalence, Bacterial infection

Introduction

Helicobacter pylori are the leading bacterial cause of chronic infection among humans [1, 2]. The infection found in the stomach affecting mainly antral mucosa, also found in metaplastic area of the duodenum [3]. It is found to be responsible for a spectrum of clinical disorders, ranging from gastritis, peptic ulcer disease, mucosa associated lymphoid tissue lymphoma and also gastric cancer [3].*H. Pylori*have been found all over the world, among different age group with approximate estimate about 50% of the population [2]. The prevalence were highest among underdeveloped countries nearly as high as (80-95%) [4]. Although there is a debate on how the organism transmitted to human, clustering among families may point to person-person transmission that occur early in life [3]. The prevalence of H. pylori varies among

different population, Ullah et al, report prevalence of 77.3% among fish handler in Bangladesh [5], while among native Malaysians who inhabit north-eastern part, Rahim et al, report prevalence of 19% [6]. Helicobacter pylori infection in underdeveloped world acquired early in life [7]. Though the exact mechanism less well established, H. pylori have been implicated in other disorders like iron deficiency anemia, idiopathic thrombocytopenic purpura and metabolic syndrome [8-10]. Using fecal serology for the detection of H. pylori, Alborzi et al, report 82% prevalence of infection in Shiraz/Iran [11]. Some studies reported decreasing in the rate of the infection in Saudi Arabia in the past decade [12]. Among mediterraneans, and possibly the world, the highest rate of H. pylori infection reported among asymptomatic people in Egypt [13-15]. There are a lot of studies that focus on risk factors that increase the rate of acquiring the infection, positive correlation was found with low income, thin body built and educational level [14].

Method and Materials

A cross-sectional,observational study was led at Al Sadder general Hospital in Misan, Iraq. The study was approved by Research and Ethics committee of Misan medical college. Informed consent was obtained from the subjects before enrolment in the study.

Data Collection

A total of 497 participants aged 10 years and above were randomly recruited into the study from December 2018 to May 2019. The subjects were collected using simple randomization method. A simple closed-ended questionnaire was then administered to collect information on age and gender of the participating subjects, location of their home (urban vs. rural), sources of drinking water at home, their educational level, income, smoking and alcohol status. A venous blood sample was drawn from each subject into a plain tube and processed for *H. pylori* antibodies using rapid antibody-antigen based immunoassay strips (HITAHI/cobas e411, S.N. 1085-25). A positive *H. pylori* test was defined as positive antibody test performed on the blood sample.

Statistical analysis needed

After collection of data, it was analysis using SPSS version 20.0 and presented as figures, tables of percentage and number. The statistical significant considered were P value equal or less than 0.05.

Results

A total number of 497 subjects were enrolled in the study, 322 (64.8%) of them were female and 175 (35.2%) were male, with median age of 36.68 ± 16.3 year. Our study showed that, evidence of *H. pylori* infection in the form of positive serology was detected in 275 (55.7%) of the subjects, of whom 187 (68%) were females, and 88 (32%) where males. (Table 1)The prevalence has two peaks with regard to age distribution, one in those younger than 20s and the other in those more than 50s but the difference was statistically non-significant. (Table 2)With regard to financial income, 302 (60.88%) have average income, 151 (30.4%) with low income and 44 (8.9%) from high social class, we found no significant relation between income level and *H. pylori* infection. Same apply to other variable we tested in our study (education, place of residence, source of water supply, frequency of eating fast food, smoking and alcohol drinking). (Table 3 and Table 4)

Table 1: correlation between gender and serology for *H. pylori* infection

		Serology						P value
		Positive		Negative		Total		
		N	%	N	%	N	%	
Gender	Male	88	32	87	39.2	175	35.2	0.09
	Female	187	68	135	60.8	322	64.8	
	Total	275	100	222	100	497	100	

Table 2: *H. pylori* distribution in relation to age

		Serology						P value
		negative		positive		Total		
		N	%	N	%	N	%	
Age group	<20 yr	25	11.4	43	15.6	68	13.7	0.3
	20-29 yr	66	30	62	22.5	128	25.8	
	30-39 yr	49	22.3	66	23.9	115	23.2	
	40-49 yr	29	13.2	39	14.1	68	13.7	
	50-59 yr	24	10.9	38	13.8	62	12.5	
	≥ 60 yr	27	12.3	28	10.1	55	11.1	
	Total	220	100	276	100	496	100	

Table 3: *H. pylori* in relation to residency, education and income

		Serology						P value
		Positive		Negative		Total		
		N	%	N	%	N	%	
Residency	Urban	211	76.7	157	70.7	368	74	0.1
	Rural	64	23.3	65	29.3	129	26	
	Total	275	100	222	100	497	100.	
Education	Non	89	32.4	92	41.4	181	36.4	0.2
	Primary	95	34.5	67	30.2	162	32.6	
	Secondary	61	22.2	42	18.9	103	20.7	
	College	30	10.9	21	9.5	51	10.3	
	Total	275	100	222	100	497	100	
Income	Low	78	28.4	73	32.9	151	30.4	0.4
	Average	170	61.8	132	59.5	302	60.8	
	High	27	9.8	17	7.7	44	8.9	
	Total	275	100	222	100	497	100.	

Table 4: *H. pylori* in relation to fast food and smoking

		Serology						P value
		Positive		Negative		Total		
		N	%	N	%	N	%	
Fast food	Non fast food eater	112	40.7	101	60.8		42.9	0.1
	In frequent	66	24	38	8.9		20.9	
	Frequent	97	35.3	83	100		36.2	
	Total	275	100	222	100	497	100	
Smoking	Non smoker	229	83.3	173	77.9	402	80.9	0.1
	Smoker	46	16.7	49	22.1	95	19.1	
	Total	275	100	222	100	497	100	

Discussion

Out of 497 subjects randomly assigned in our study, the prevalence of *H. pylori* was 55.7% (275), which is lower than that previously studied in our country [16] and nearby country [17-19]. Lower prevalence in our study may attribute to better state of

living, increase population health awareness and improve sanitation.This study shows that, the prevalence is higher in women than in men (58% vs. 50%, p value 0.09). A recent meta-analysis of 184 studies published in 2018, it show male predominance in several part of the world [19], the higher prevalence in women in our study may be related to cultural reasons as most housekeeping works, cocking and taking care of food preparation mostly doing by women. Other possible reason, 74% of females in our sample are either non-educated (43.6%) or does not finish the primary teaching (30.5%).

In those between the age of 20-60 years, the prevalence increase gradually with age, though it is not significant, the finding that previously established [20]. Subjects below the age of 20 years show slight increase prevalence but the sample size was small (68 subjects only). Increase prevalence with age could be explained by longer chance of getting the infection with time.

In contrast to most studies, some of them show significant association between income level and *H. pylori* infection [21], our study showed no such association, which could be explained with rapprochement of living conditions and improvement in health awareness among different social class.

Conclusion

The prevalence of *H. pylori* is high in Misan provenance, though it may be less than previously found in other studies in Iraq, or nearby country. The prevalence found to be more among women, and it is increasing with age.

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