Original Article

Prevalence of Helicobacter pylori infection causing serious gastric problems in individuals consuming spicy food in district Khairpur, Pakistan

Nisar Abbas Shar, Rafique Abbas Shar, Gul Afshan Soomro, Ghulam Abbas Shar, Muhammad Bachal Korai, Shaista Khan

Department of Medicine, Ghulam Mohammad Mahar, Medical College Hospital
Shah Abdul Latif University, Khairpur, Sindh, Pakistan

Objective: To investigate the prevalence of *H. pylori* in spicy food consuming individuals of district Khairpur, Pakistan.

Methodology: In this cross-sectional study, total of 238 patients were included and samples of the blood were taken. The people were interrogated by utilizing the planned pre-tested questionnaire. Immunochromatographic technique (ICT) kit method was used for serum antibodies. Immunoglobin acute & chronic (IgM/IgG) test was used for antibodies in samples. Data were analyzed on SPSS version 17.

Results: The rate was allied with sort of consuming spicy food in adult with p = 0.00001. H. pylori infection exhibited substantial association with spicy food intake. In 238 individuals consuming spicy food, 158 were positive for H. pylori IgM/IgG antibodies. Overall, H. pylori was seen in 66.38% cases.

Conclusion: The incidence of H. pylori is considerably high in individuals with intake of spicy foods (p < 0.0001) in our district. However, further studies are suggested to determine the other risk factors for acquisition of H. pylori infection in this area.

Keywords: Helicobacter pylori, immunochromatography technique, IgG antibodies.

INTRODUCTION

H. pylori is a gram-negative bacterium, generally present in human stomach and causes infection.[1,2] In 1980's Warren and Marshall from Perth, Australia reported culture a bacterium that was Campylobacter pyloridis. Helicobacter Genus was formed in 1989 and was given the title as H. pylori.[3] Its size is 0.5 – 1.0 μm width and 2.5 – 5.0 μm length and has 4 – 6 flagella.[4] Inside stomach, most of the H. pylori is detectable within the gastric mucosa; a few, however, are adherent to intestinal epithelial mucosa.[5] Transmission of H. pylori from person to person by the oral-oral or fecal-oral route is most likely.[6] Bacteria have been isolated from stool, saliva, and dental plaque of infected people.[7] The incidence of H. pylori and related infections has been extremely unpredictable globally.[8]

In developing countries of Asia including Pakistan, India, Thailand and Bangladesh the incidence of H. pylori infection is greater while in developed countries of Asia as China and Japan it was shown in the early era.[9] Humans have an inhospitable stomach and usually fasting conditions do not support any bacteria except few lactobacilli and H. pylori.[10] The H. pylori is highly adaptive which allow it to colonize.[11]

Spicy food consumers adults have symptoms of dyspepsia that are greatly linked to this infection.[12] The rate among adult are higher than 80% in various developing countries versus 25% in industrial nations.[13] H. pylori infection causes chronic gastritis, peptic ulcer and gastric cancer.[14] Epidemiological prevalence of infection of H. pylori is not available in Khairpur. Therefore, the need of the hour was to investigate the gastric problems to take timely efforts for controlling the spread of such disease.

METHODOLOGY

In this cross-sectional study, 238 patients were included and samples of the blood were taken. The people were interrogated by utilizing the planned pre-tested questionnaire and blood samples were collected using standard protocol. Immunochromatographic technique (ICT) kit method IgM enzyme-linked immunosorbent assay (ELISA kit, Cat # EIA-2111, Tests: 96 wells, DRG Instruments GmbH, Germany) was used for analysis of samples.

An authorized official permission letter was acquired from the Head of Medicine Department of KMC Hospital Khairpur and Pir Syed Abdul Qadir Shah Jeelani Institute of Medical Sciences, Gambat (GIMS), Khairpur.

Statistical Analysis: Data were analyzed on SPSS version 17. Chi square, p-value, and Pearson Chi-square tests were statistically conducted.

RESULTS

During the survey study, 334 respondent patients were interviewed using pre organized questionnaire to collect the information and they answered several questions regarding the symptoms suffering from. The obtained results were compiled and analyzed. Total number of respondent patients during survey was 334. Out of 344 total respondent patients, 95.2% (318/334) had nausea, 94.6% (316/334) had vomiting, 94.3% (315/334) heartburn and abnormal bloating, 84.7% (283/334) poor appetite, 82% (274/334) weight loss. We found that 84.7% (283/334) individuals consumed spicy food (Table 1). Incidence of H. pylori in current study was higher significantly 84.7% in those whose dietary habits were spicy food than those 15.3% whose dietary habits were non-spicy food.

Out of 334, 238 respondents were agreed for consent to perform their tests for prevalence of H. pylori and 96 were disagreeing. IgM/IgG test ICT kit test for H. pylori in spicy food consuming patients showed positive results as 66.38% (158/238) and negative as 33.61% (80/238) as shown in Table 2.

Table 1: Respondents having spicy food and symptoms.

Symptoms	Yes	No	Percentage	
			Yes	No
Having Spicy Food	283	51	84.7	15.3
Nausea	318	16	95.2	4.8
Vomiting	316	18	94.6	5.4
Heart Burn and Abnormal	315	19	94.3	5.7
Poor Appetite	283	51	84.7	15.3
Weight loss	274	60	82	18
Previous History	116	218	34.7	65.3

Table 2: Result of IgM/IgG Test for *H*. pylori in serum.

Positive		Negative		Total
Number	%	Number	%	
158	66.38%	80	33.61%	**238**

Statistically analysis of data compared for validation of our results and Chi-square results were less than 0.014 (Table 3). Table 3 also shows the H. pylori associated with spicy food factors in which p-value was 0.000 for spicy food consumption.

Table 3: Validation and Significance (*p*-value) of *H. pylori* results by SPSS.

Method	Significance
Pearson Chi-Square	0.014
Significance (*p*-value)	
Spicy Intake	Significance (*p*-value)
	0.00001

DISCUSSION

There are various symptoms like nausea, vomiting, heartburn, poor appetite etc., by which the prevalence of *Helicobacter pylori* can be predicted. The study in Kassala State, East of Sudan, revealed that among 431 schoolchildren the most common signs linked to *H. pylori* infections was nausea in 25.5%.[15] Another study revealed that nausea was considerably allied with the *H. pylori*.[16] A greater correlation with active *H. pylori* infection was found in 93.3% for alcohol drinking and 80% for non-vegetarian food consumption.[17] The results of our study showed that many respondents had nausea, vomiting, heartburn and abnormal bloating, poor appetite and weight loss (Table 1).

Infection with *H. pylori* may also be linked with diet and feeding practices.[18] Eating kipper and fried food was positively associated with *H. pylori* infection. Furthermore, salty food itself may be a source of *H. pylori*.[19] The synergistic amplifying influence of infection with *H. pylori* and consumption of salty foods was noted in a case control study in Korea.[20] In a previous study, individuals who consumed marinated foods infrequently than on any second day were the most highly infected (66.77%).[19] In our study, 84.7% individuals consumed spicy food (Table 1).

A previous study on *H. pylori* by an enzyme-linked immunoassay revealed that 0.82 (0.74 – 0.91) – fold and 0.88 (0.79 – 0.98) – fold greater risk of *H. pylori* seropositivity in smokers and drinker than those who had never consumed them.[21] Another study showed total IgG antibody seropositivity was 79.3 percent, rank correlated inversely with infection and non cigarette smoking and drinking alcohol were associated with infection.[22] A cross-sectional study of 634 men randomly selected in Japan and the 474 men were positive for the IgG antibody against the bacterium.[23]

H. pylori infection in dyspeptic patients seems to be connected with gastritis in a study from Islamabad showed the 94.6% patients with chronic gastritis.[24] Statistically analysis of our data in SPSS compared the validation of our results with chi square and Pearson Chi-square result less than 0.014. The *H. pylori*

associated with spicy food factor in which *p*-value was found to be 0.00001 for spicy food consumption (Table 3).

CONCLUSION

The rate of *H. pylori* infection was relatively high in males (68%) than females (32%). The blood serology test results of individuals consuming spicy food were positive for *H. pylori* IgM/IgG in district Khairpur. Better understanding the prevailing pattern will help in prioritizing public health efforts to effectively manage *H. pylori* infection associated complications.

Author Contributions:
Conception and design: Nisar Abbas Shar, Ghulam Abbas Shar.
Collection and assembly of data: Nisar Abbas Shar, Ghulam Abbas Shar.
Analysis and interpretation of data: Rafique Abbas Shar, Gul Afshan Soomro, Muhammad Bachal Korai.
Drafting of the article: Nisar Abbas Shar, Rafique Abbas Shar, Shaista Khan.
Critical revision of article for important intellectual content: Nisar Abbas Shar.
Statistical expertise: Gul Afshan Soomro, Muhammad Bachal Korai.
Final approval and guarantor of the article: Ghulam Abbas Shar.
Corresponding author email: Ghulam Abbas: gabbas.shar@salu.edu.pk
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