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PREVALENCE AND RISK FACTORS (PHYSIOPATHOLOGY) OF HELICOBACTER PYLORI INFECTION AMONG PATIENTS ATTENDED TO HEALTH CENTERS IN MUDHAFFER DIRECTORATE-TAIZ-YEMEN

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ABSTRACT

Aim: This study was carried to determine the prevalence of H. pylori infection among patients attended to Health centers in Mudhaffer Directorate Taiz-Yemen, which is war area up to now. Also to determine the percentage value for H. pylori infection according to age groups and sex. To determine the risk factors contributing to the H. pylori transmission mainly chewing khat which is one of main bad habit in Yemen. With focusing on main clinical pictures by using one step H. pylori test device (Rapid test). **Study design:** Cross-sectional study. **Place and duration of study:** This study was carried out from war area in Yemen –Taiz-A-Mudhaffer district for about 70 cases, during September 2017 up to October 2017 (Two months).

Methodology: A total of 70 cases were randomly collected examined by rapid test (One step Helicobacter pylori rapid test device). A questionnaire data was used for determined the correlation of infection to age, sex, risk factors, clinical pictures. **Statistical analysis:** Data analyzed by SPSS. Program. **Result:** The study found out of the 70 studied cases, 37 (52.8%~53% as in Figure 1 and table 2) were positive for H. Pylori Abs. Females were higher than Males with percentages of 42.8%~43% as in Figure 2 and table 1. The highest prevalence of H. pylori infection occurred in the age group 50-58 years with percentage value 27% which the prevalence was increased gradually with older age groups. The principal manifestations among positive cases for H. pylori infection were feeling of acidity with a percentage of 64.3 followed by dyspepsia, diarrhea, vomiting, abdominal pain, headache, fever, loss of appetite and then nausea with percentage values of 62.5%, 61.3%, 60.7%, 54%,

53.8%, 47.6%, 45.6% and 42.5% respectively, the chewing Khat cases were high affection with H. Pylori 71%.

KEYWORDS: Al-Mudhaffer-Taiz-Yemen-Helicobacter pylori – Risk Factors (Physiopathology) - Chewing Khat-Rapid test device.

Abbreviation: H. Pylori: Helicobacter pylori. /GIT: Gastro Intestinal Tract. /Ab: Antibodies.

INTRODUCTION

H. pylori is a gram negative rod, flagellated, curved, selectively colonized the lumen stomach.[6-33-45] H. pylori infection is a global public health problem, affecting over 50% of population worldwide.([3-1], this rate is higher in underdeveloped countries than developed countries.[7]

It has reported in Yemen that prevalence of pylori infection among patient underwent upper GIT endoscopy in Sana major hospitals was very high 99.6%.[39]

H. pylori is the major cause of gastritis, that play role in the etiology of peptic ulcer and it is a risk factor for gastric carcinoma.[45]

A link between H. pylori infection and duodenal ulcer disease is now stablished.[37]

The prevalence of H. pylori infection in gastric and duodenal ulcer has consistently been found to be 80-90%.[38] Eradication of H. pylori infection decrease the incidence of duodenal ulcer and prevent its recurrence by reduce both basal gastrin release and acid secretion without affecting partial cell sensitivity.[24_27]

Cure of H. pylori infection had a 76% lower incidence of gastric cancer as compare with untreated individuals.[25]

In Sudan there was study joining the intestinal parasite infection with the H. pylori infection especially E. Histolytica and Giardia lamblia.[26]

Daily chewing Khat in Yemen associated with high prevalence of H. pylori and duodenal ulcer.[40]

Several factors control the transmission of H. pylori infection in developing countries including low socioeconomic condition, poor quality of drinking water, overcrowding, poor personal, environmental hygiene, and food contamination.[31-32-22-23]

MATERIAL AND METHODS

Study design, area, population

This is cross-section study., aimed to determine the prevalence, risk factors and main clinical pictures of H.pylori infection in patients attending to Al Mudhaffer in Taiz –Yemen**. Test use for detect H. pylori**: One step H. pylori test device which is the qualitative membrane based immunoassay for the detection of H. pylori antibodies in the patient's serum or plasma Al-Mudhaffer –Taiz-Yemen is the area that collect the specimens, the people are Yemeni people live under war situation.

Inclusion criteria: Taiz-Yemeni people in our research suffer Abad socioeconomic situation due to war.

Ethics: The study was proved by the Research Ethics Committee of Facuality of Medicine and Health Sciences. Taiz University-Yemen. Participation of patients was voluntary and obtaining informed consent from them before data and sample collection. **Statistical analysis**: SPSS use for data and graphs.

Time of study: September –October- 2017.

Principle of rapid test use in the research

The One Step *H. pylori* Test Device is a qualitative membrane based immunoassay for the detection of *H. pylori* antibodies in patients serum or plasma. In this test procedure, anti-human **IgG** was immobilized in the test line region of the test. After specimen was added to the specimen well of the device, it reacts with *H. pylori* antigen coated particles in the test. This mixture migrated chromatographically along the length of the test and interacted with the immobilized anti-human IgG If the specimen was contained *H. pylori* antibodies; a colored line was appeared in the test line region indicated a positive result. It the specimen does not contained *H. pylori* antibodies; a colored line was not appeared in this region indicated a negative result. To serve as a procedural control, a colored line was always appeared in the control line region, indicated that proper volume of specimen had been added and membrane wicking had occurred.

One Step H. Pylori Test Device

The One Step H. Pylori Test Device is a rapid chromatographic immunoassay for the qualitative detection of antibodies of H. pylori in patients' serum or plasma to aid in the diagnosis of H. pylori infection Were commercially available with a relative sensitivity and a relative specificity (99%, 86.7%) respectively versus ELISA while a relative sensitivity and a relative specificity (95.9%, 75.9%) respectively versus Biopsy. It was provided by AVON Laboratories, Inc USA.

RESULTS

- The detailed results of this study are presented in the following tables and figures below:

Table 1: Result of H. pylori infection among patient attended Health centers in Mudhaffer Directorate.

Gender Age Groups	Male		Female	
	+Ve	-Ve	+Ve	-Ve
18-25	0	2	6	4
26-33	1	0	5	4
34-41	1	2	6	6
42-49	2	3	6	5
50-58	3	4	7	3
Total	7	11	30	22
%	10%	15.7%	42.9%	31.4%

Table 2: Distribution of H. Pylori Abs cases according to their gender.

	pylori Abs +ve		pylori Abs -ve		Total	
	No	%	No	%	No	%
Male	7	10%	11	15.7%	18	25.7%
Female	30	42.8%	22	31.4%	52	74.3%
Total	37	52.8%	33	47.2%	70	100%

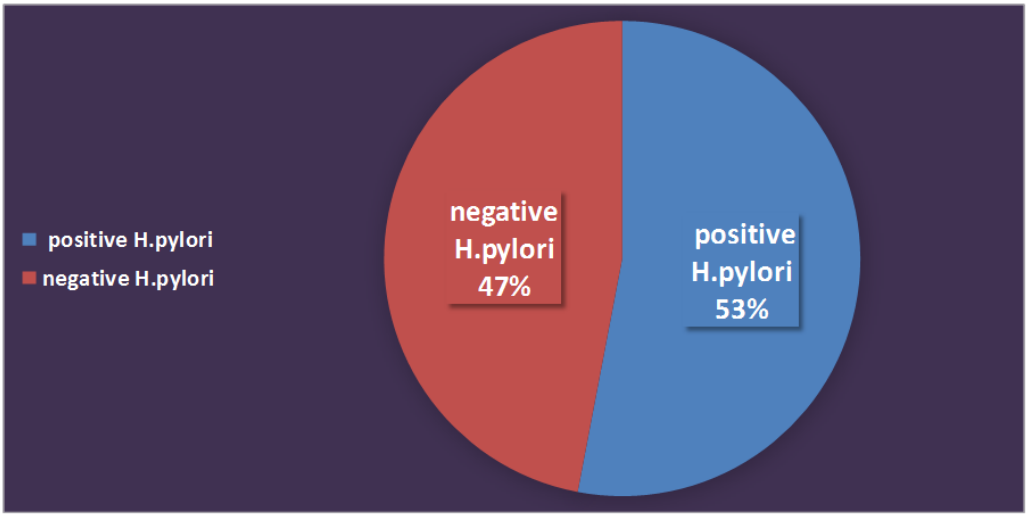

Figure 1: Distribution of positive and Negative H. pylori.

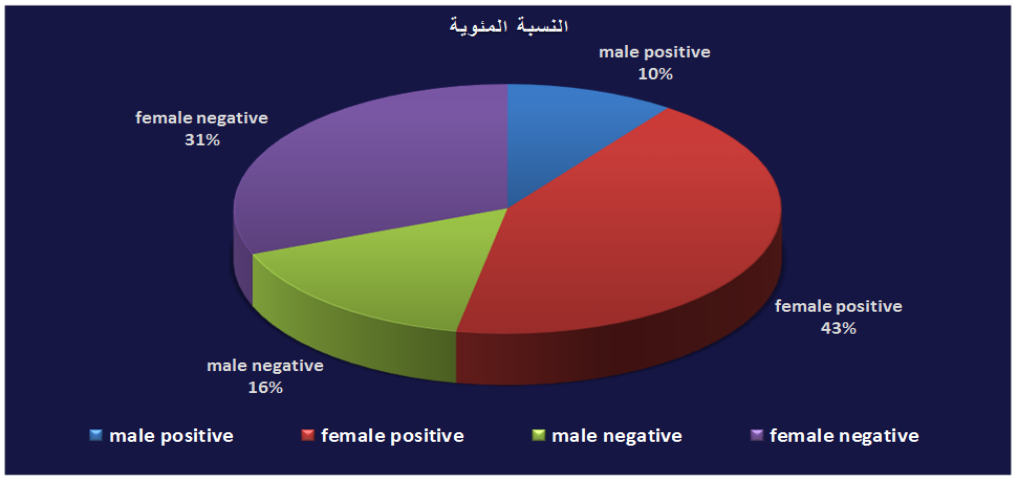

Figure 2: Distribution of positive and Negative H. Pylori Abs cases according to their gender.

Table 3: Distribution of H. Pylori Abs cases according to their clinical manifestations.

	H. pylori Abs		H. pylori Abs		Total a=50	
	Positive		Negative			
Symptoms						
	No.	%	No.	%	No.	%
Fever	20	47.6	22	52.4	42	84.0
Abdominal pain	27	54.0	23	46.0	50	100
Feeling of acidity	27	64.3	15	52.4	42	84.0
Diarrhea	19	61.3	12	46.0	31	62.0
Vomiting	17	60.7	11	39.3	28	56.0
Dyspepsia	25	62.5	15	37.5	40	80.0
Nausea	17	42.5	23	57.5	40	80.0
Loss of appetite	16	45.7	19	54.3	35	70.0
Headache	21	53.8	18	46.2	39	78.0

Table 4: Distribution of H. Pylori Abs cases according to the potential Risk Factors (Physiopathology).

	H. pylori Abs		H. pylori Abs	
Risk Factors	**Positive**		**Negative**	
	No.	**%**	**No.**	**%**
Fried food	10	62.5	6	37.5
Bean food	15	60	10	40
Spicy food	30	62.5	18	37.5
Eating raw vegetables	12	63.1	7	36.8
Treated water	7	41.1	10	58.8
Tap water	23	67.6	11	32.3
Smoking	20	77	6	23
khat chewing	27	71	11	29

DISCUSSION

According to our study as shown in table 2, out of 70 cases (52.8~53%) was positive for H. pylori infection in Al Mudhaffer –Taiz-Yemen by using the one step rapid test, especially with increasing age (50ys as shown in table 1). There was study in Taiz in 1013 agree with our study, Gamal Alameri and Mawhoob Noman[15] found that 57.7% was positive for H. pylori were in age 30-50ys old.

Cover et al[13] study mentioned that H. pylori infection is generally acquired during childhood and persist long life in the absent of treatment with antibiotic, most of infected individuals remain asymptomatic for long time. Our study agrees with Cover et al[13], in Yemen due to war situation, bad socioeconomic conditions and low healthy education specially of female was lead them to ignore their health and treatment. Study of Phoebe Aitila et al[12], found that Seroprevelence of H. pylori infection up to 96 of the participants were positive for H. pylori antibodies rapid test in South west Uganda. Study in Saudi Arabia agree with our study they found that H. pylori infection acquired at early stage but reached to 36.9% as age advanced. (Hanafi and Mohmmed A M[43])

Laure et al[11] found that Seroprevelence of H. pylori related positively with increase age. Similar result was in study in Saudia Arabia, Bangladesh, India and Asrail.[18-21-28-29]

Also other study did by Ndip et al[10] mentioned the relation of H. pylori infection to age strongly 92.2% as we noticed in our research.

Study of Mahalanabis et al[4] mentioned that the incidence and prevalence rate of H. pylori infection vary greatly.

In Uganda like Yemen, data of an H. pylori is scanty, few reported done in Kampala with an overview of prevalence of 43. 3%(E.Hestvik et al[16])

A lot of study mentioned that the H. pylori infection is increase with age (Alebie Gand Kaba[41], J Clemens et al[30], Howden C W[33], Marshal et al[24], Abdulaziz and Bin saeed[20], Novis et al[19])

In our study as shown in table 2 relation of H. pylori infection to sex, we notice that female affected more than male (42.8~43%), but study of Phoehe Aitila et al[12] disagree with our study they found no relation between sex and H. pylori infection. Also the study of E Tadesse et al[17] found that, sex equally affected by H. pylori infection.

In relation to clinical picture in our study as shown in table 3 we found that feeling of acidity was 64.3% follow by dyspepsia 62.5% were the presentation of patients in Mudhaffer Taiz, Laure et al[11] study disagree with our result they found nausea and vomiting were the main clinical symptoms. Al-Makdad et al[34] study agree with our study they found that H. pylori was significant associated with acidity and dyspepsia.

Our study shown in table 4 the effect of risk factors to H. pylori infection, we found in our study that patients used tap water was positive for H. pylori Abs test 67.6%, our study agree with study of Phobe Aitila et al[12], they joined the tap water using with H. pylori infection 53-9%.

Other study of Ghalia et al[14] in United Arab Emirate, they noticed the relation of H. pylori infection with tap water with significant value P<0. 001. But study in Bangladesh mentioned that lack of sanitary facilities was not associated with H. pylori(J Clemens et al[30])

Difference in prevalence with population are due to variety of factors primarily related to socioeconomically status and geographical origin (AbdulAziz and Bin saeed[20]), we agree with this study, Yemeni people live in bad war situation that affect health, income and safety.

Our study shown the relation of H. pylori with smoking 77%, Study of Alebie and Kaba[41] disagree with our result, they found that no relation between smoking and H. pylori infection.

Ali Alyahawi et al[35], there study agree with our result, they found strong relation between H.pylori and smoking.

Green leaves (Khat), chewing of khat is a bad daily habit used in Yemen, we found in our study relation between infection with H. pylori and Khat chewing 71%. Study of Ali Alyahawi et al[35] in Yemen found relation between chewing khat and H. pylori infection.

Study of Nakajima et al[42] found that in Yemen smoker consumed a lot of cigarette during chewing khat.

Study of Nigussie et al[36] found that chewing khat had a positive association with gastrointestinal symptoms such as constipation, but in our study the positive cases came in diarrheic state 61.3%.

In our study, we found that there was relation between spicy food and H. pylori infection in Yemeni people, we donnot found any study mentioned this relation.

In study of Yasmine Samir et al[44] in Egypt they found great significant between H. pylori and eating from street vendors $P<0.001$.

Many authors' mentioned the roles of many factors like age, smoking, crowding, chewing khat and eating outside with H. pylori infection.[8-9]

The mode of transmission of H. pylori is not certainly known, however epidemiological studies strongly support person to person transmission and fecal-oral and oral-oral routes.[2-5]

CONCLUSION

It can conclude from this study, that H. pylori represent one of the most important etiological agent of gastric mucosa and affect the Chewing Khat and smoking persons.

Also we notice the effect of war on the socioeconomic condition of the patients which lead to affect them with the H. pylori infection.

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