Determination of Dyspepsia Causes in Patients Attending Endoscopy dept. of Azadi Teaching Hospital in Duhok City

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ABSTRACT

Background and Objectives: Both gastric and duodenal ulcers associated with were a major threat over the past two centuries, with a high morbidity, mortality& striking geographical variations in incidence & prevalence. *H. Pylori* discovery switched the notion from an acid-driven disease to an infectious disease, with reconciliation of previously suggested pathogenesis**.**This study was undertaken in order to investigate the causes of dyspepsia in patients undergoing endoscopy examination and to measure the anti *H. pylori* antibodies level in serum of these patients then to find any correlation between the titer of these specific antibodies and the severity of their dyspeptic symptoms.

Methods: The study was conducted in microbiology lab. at Azadi teaching hospital. 90 patients suffering from symptoms of gastric upset were included in this study. Their age range from 10 to 66 year old, 46 female and 44 male. Endoscopy was done for each patient and the result of examination was reported and gastric juice aspirate taken from stomach by endoscopy was sent for direct examination for *Giardia lamblia*, monilia, pus cells, and RBC. 5 ml of whole blood was taken from each patient and serum collected after centrifugation and kept at -20*c to be used for detection of specific *H.pylori* IgM by ELISA and total serum IgA by single radial diffusion test.

Results: Abnormal endoscopy findings were found in 36 out of 90 patients *Giardia lamblia* was not found in any case. The results of ELISA test for specific IgM against *Helicobacter pylori* showed that 10 cases were positive which indicate acute *Helicobacter pylori* infections (7 female, 3 male) their age range from 10 to 60 years. Seven of them have abnormal endoscopy finding range from gastritis to gastric ulcer, this confirm that acute infection with *Helicobacter pylori* is responsible for the endoscopy abnormal findings. The other 3 patients although they are suffering from gastric symptoms they have negative endoscopy finding which need follow up by another endoscopy to monitor the appearance of gastric or duodenal lesion. The concentration of total serum IgA was measured by single radial diffusion. 17 patients had high level of total serum IgA, 8 of them with abnormal endoscopy finding and the other 9 with normal endoscopy finding. All ten patients with positive specific anti *H .pylori* IgM have normal level of total serum IgA.

Conclusions: This study found anti *H.pylori* specific IgM confirmative for diagnosis of acute infection even in the absence of positive endoscopy finding. The measurement of total serum IgA is not helpful for diagnosis of acute or chronic infection and to be replaced by specific anti *H. pylori* IgA in serum.

Key wordsdyspepsia, *Helicobacter pylori*, specific IgM .

INTRODUCTION:

Dyspepsia is defined as “impaired gastric function or ‘upset stomach’ characterized by epigastric pain, sometimes burning, uently presents as chronic or recurrent pain or discomfort in the upper abdomen[2]. Because a link has been established between peptic ulcers and infection with *H pylori*, patients with this condition should

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be evaluated for the presence of the organism [2,4-7]. *H pylori* is probably the most common chronic infection, with infection rates of up to 90% in some populations[3]. In a recent Mayo study of a random population of 200 apparently healthy blood donors, the positive rate for *H. pylori* IgG antibody level was 27.5%.8 dyspepsia may be associated with *H. pylori* infection without the presence of ulcers, identification and eradication of infection are recommended[9]. The organism also plays an etiologic role in dysplasia and metaplasia of the gastric mucosa, gastric adenocarcinoma, and non-Hodgkin lymphoma of the stomach. Infection increases the risk of developing gastric cancer and mucosa-associated-lymphoid-type (MALT) lymphoma 2-fold to 6-fold[5]. Several alternatives to endoscopic biopsy are available for identification of *H. pylori* infection. These include the urea breath test, stool antigen test, and serology testing[9,10]. Serologic testing for *H. pylori* provides a surrogate assessment for the presence of the organism by detecting IgG, IgM, or IgA antibodies formed in response to *H. pylori* antigens. Serologic methods, compared with other methods, are convenient for the patient, easy to perform, do not rely on the accuracy of specimen sampling, and are sufficiently sensitive to detect new cases of *H. pylori* infection. However, serologic tests lack specificity when compared to gold standard tests for *H. pylori* infection. A combination of ELISA and immunoblot may be more sensitive in the detection of *H. pylori* infection in dyspeptic patients than the examination of biopsy specimens by culturing or histology[11]. Patients with *H pylori* infection nearly always develop antibodies of the IgG class and less frequently develop antibodies of the IgA class. *H pylori*-specific IgM antibodies may be produced shortly after the onset of infection. In some cases, IgA and IgM may be positive in the absence of IgG, especially in early disease. Due to the chronicity of this disease, detection of *H pylori*-specific IgG antibodies *H. pylori* detection when used simultaneously are more efficient in accuracy, sensitivity and negative predictive value, than those when used alone. The concentration of IgA antibodies in duodenal fluid is not useful in identifying patients with or without H pylori[12]. Concentration of the immunoglobulins IgG, IgA, and IgM in human serum are frequently estimated by immunochemical methods based on the precipitation of antigen - antibody complexes in agar gel. One such technique that is of single radial diffusion is now used. Solution of antigens is introduced into small wells cut into agar plates in which antiserum is uniformly distributed. Antigen diffuses from these wells and produces circular area of precipitate [13,14].

MATERIAL & METHODS:

The study was conducted in microbiology lab at Azadi teaching hospital. Samples to be examined were obtained from patients attending the Gastroenterology department at Azadi teaching hospital. 90 patients suffering from symptoms of gastric upset were included in this study. Their age range from 10 to 66 year old, 46 female and 44 male. The list of questionnaire was completed for each patient includes the following: name, age, sex, address, history of disease and symptoms, gastric pain, vomiting, diarrhea, the type of food, drugs taken. 5 ml of whole blood was taken from each patient and serum collected after centrifugation and kept at -20*c for the serological tests.

I-Endoscopy was done for each patient and the result of examination was reported and gastric juice aspirate taken from stomach by endoscopy was sent for direct examination for *Giardia lamblia*, monilia pus, cells, and RBC.

II-*Serological tests:*

1. ELISA TEST: Enzyme linked immunosorbant assay was used to detect the specific anti *Helicobacter pylori* IgM (Monobind Inc. Lake Forest, CA 92630, USA). To detect the acute *Helicobacter*

Measurement of total serum IgA by radial immunodiffusion plate (LTA-Italy). The total serum concentration of IgA is measured to find any correlation with acute or chronic gastritis or duodenitis.

These serological tests were done to find any correlation between the titer of specific anti *H. pylori* IgM,and total serum IgA with the severity of mucous membrane lesion, that is ulcerative or non ulcerative gastritis or duodenitis. Stastistical analysis: Chi test and McNemar's test were applied.

RESULT:

1. Endoscopy examination finding: 36 out of 90 patients had abnormal endoscopy finding range from gastritis, duodenitis, erosion, and ulcer. *Giardia lamblia* was not found in any case. Direct examination of aspirate showed pus cells in 8 patients, one of them only had positive IgM specific to *Helicobacter pylori.* Monilia was found in 2 cases only.

2. ELISA test for specific IgM against *Helicobacter pylori*.

The results of this test showed that 10 cases were positive which indicate acute *Helicobacter pylori* (7 female, 3 male) their age range from 10 to 60 years.7 out of 10 patients with positive specific IgM have abnormal endoscopy finding range from gastritis to gastric ulcer, this confirm that acute infection with *Helicobacter pylori* is responsible for the endoscopy abnormal findings (P .(0.001< The other 3 patients although they are suffering from gastric symptoms they have negative endoscopy finding which need follow up by another endoscopy to monitor the appearance of gastric or duodenal lesion, and they should be treated as well. The sensitivity of ELISA test is 70%. All the other patients with abnormal endoscopy finding 36-7=29 have negative results for anti *H.pylori* specific IgM. This indicates they have no acute *H. pylori* infection.

3. IgA RID: The concentration of total serum IgA was measured. 17 patients had high level of total serum IgA, 8 of them with abnormal endoscopy finding and the other 9 with normal endoscopy finding, the sensitivity is 47%. All the patients with positive specific anti *H.pylori* IgM have normal level of total serum IgA.

Table 1: showing the age distribution among endoscopy cases

	Age groups			
	10-29years	30-49years	50-69years	total
Abnormal Endoscopy Finding	17	10	9	36
Normal Endoscopy Finding	23	15	16	54
Total	40	25	25	90

P=0.873 (non significant)

Table 2: showing the gender distribution among endoscopy cases

	Gender		Total
	Male	Female	
Abnormal Endoscopy Finding	16	20	36
Normal Endoscopy Finding	28	26	54
Total	44	46	90

P=0.106 (non significant)

Table 3: showing the age distribution among the Anti *H.pylori* IgM positive cases.

Anti *H.pylori* IgM positive cases	Age groups			
	10-29years	30-49years	50-69years	total
Abnormal Endoscopy Finding	4	1	2	7
Normal Endoscopy Finding	2	1		3
Total	6	2	2	10

Table 4: showing the results of Anti *H.pylori* IgM according to endoscopy finding

	IgM Positive	IgM Negative	Total
Endoscopy Positive	7	29	36
Endoscopy Negative	3	51	54
Total	10	80	90

Table5: showing the results of Anti *H.pylori* IgM and serum IgA according to endoscopy finding

	IgM Positive	High IgA	Total
Endoscopy Positive	7	8	15
Endoscopy Negative	3	9	12
Total	10	17	27

Table6: showing the results of serum IgA according to Anti *H.pylori* IgM

	High IgA	Normal IgA	Total
IgM Positive	0	10	10
IgM Negative	17	63	80
Total	17	73	90

P=0.248(non significant)

DISCUSSION:

This study found no correlation between *Giardia lamblia* and *H.pylori* infection in causation of abnormal endoscopy finding of patients suffering from gastric upset. In contrast Moreira et al, 2005 and Graziola *et al*, 2006 found that *Giardia lamblia* infection accounted for 6.5% of patients with dyspepsia and significant association was found between *giardia lamblia* and *H.pylori* infection. The specific anti *H.pylori* IgM confirm the diagnosis of acute infection in patients with gastric symptoms even before the appearance of abnormal endoscopy finding. This goes with Uwe blecker, 1994 and Alem *et al*, 2002 who concluded that ELISA can be used for the detection of specific IgM antibodies to *H.pylori* and the presence or absence of IgM specific antibodies may reflect whether or not acute infection exists. Moreover the prevalence of specific IgM antibodies to *H.pylori* in tested sera was significantly higher in symptomatic patients than in asymptomatic ones.

The results of this study could not differentiate between the ulcerative and non ulcerative gastritis and duodenitis depending on serological marker, which is similar to results obtained by Luzza *et al*, 1994. The specific anti *H.pylori* IgM was not detected in 26 cases with abnormal endoscopy finding which favor that these patients are suffering from chronic *H.pylori* infection and should be screened for Anti *H.pylori* specific IgG by ELISA. Sobala GM 1991, demonstrated that *H.pylori* specific IgG to be comparable to invasive technique and reliable screening method for diagnosis of chronic infection. The diagnosis of *H.pylori* infection is essential step and should be followed by treatment to eradicate *H.pylori* to avoid and prevent the development of atrophic gastritis which is a late consequence of *H.pylori* and associated with increased risk for gastric cancer, this was approved by Kokkola *et al*, 2000 and Limburg *et al*, 2001 and Kamangar *et al*, 2006. Regarding the diagnosis of *H.pylori* infection and do not correlate with the patient having specific IgM. In contrast to study done by Shungi *et al*, 1998 which found the specific *H.pylori* IgA in serum or gastric secretion or the measurement of specific IgA over total IgA in serum to be confirmative of *H.pylori* infection. In conclusion: this study found anti *H.pylori* specific IgM confirmative for diagnosis of acute infection even in the absence of endoscopy finding. The measurement of total serum IgA is not helpful for diagnosis of acute or chronic infection and to be replaced by specific anti *H.pylori* IgA in serum.

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