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Endoscopic Findings in Eighty Dyspeptic Patients and Their Microbiological Correlate

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Abstract
Background: Helicobacter pylori are the most common chronic bacterial infection, and a significant etiological factor in acid peptic diseases and gastric cancer. Dyspepsia is a common gastrointestinal disorder, and the most common indication for gastroscopy. Detection of H. pylori during endoscopy has become standard clinical practice.
Objective: To detect the different underling OGD causes of dyspeptic symptoms in patients presented to the outpatients clinic of the gastroenterology unit in Al-Ramadi Teaching Hospital, and their microbiological correlate.
Methods: From January 2010 to September 2010, eighty patients with various upper gastrointestinal complaints (epigastric pain, heart burn. etc) were evaluated by OGD in the gastro endoscopic unit in AL-ramadi teaching hospital.
In all patients after fasting for at least 4 hours an OGD was done using fibroptic (FG29w Pentax) endoscope. Blood samples were collected from patients (5 ml of venous blood) serum was separated and stored frozen for further processing.Preliminary screening dipstick assay was performed to detect the presence or absence of H.pylori serologically, after that confirmatory anti H.pylori lgG was done by enzyme linked immunosorbent assay with DRG (Germany) kit.
The results were interpreted as positive if the optical density is (1.192 Du / ml) and above, and it considered negative if optical density (0.357 Du/ ml) and below, and all the recording between (1.192 0.357) were reflected the grey zone result (equivocal results), were regarded as negative too.
Results: In the present study H. pylori infection was detected in (44%6) of patients by anti H.pylori antibody (IgG), and (56%) by dipstick assay. In the present study there was a great correlation between H. pylori infection with CA stomach (20) (100%), P.U. disease (71%), gastritis (63%) (%erosions (57%) respectively, while a correlation was negligible with GERD and gastric polyps (21).
Conclusion: The invasiveness and cost of endoscopy and the difficulty to perform urea breath test and stool antigen to all patients makes serological tests as a much convenient alternative so it was selected in our study. H. pylori role in dyspepsia seems to be an important risk factor that should be considered, discovered and eradicated However, further studies may be needed in larger number of patients to establish ELISA test as a conclusive procedure.

Keywords: H. pylori, dyspepsia, endosgopy

Introduction

Gastric infection with the bacterium H. pylori accounts for the majority of peptic ulcer disease and the clinical features range from asymptomatic gastritis to gastrointestinal malignancvy [1]. Helicobacter pylori (previously named campylobacter Pylori) is a spiral organism which lives in human stomach and was first described by krentz in Germany in 1903 [2]. The first culture of Hpylori was performed in Perth, Australia, in April 1982 by Marshal and Warren, and the first report was made in the following year in the lancet [3]. Since then evidence has accumulated to link this bacterial organism in the pathogenesis of peptic diseases [4]. H. pylori is a gram negative, spiral, flagellate rod (0.5x3) um in size, and is non-invasive, living in the deeper portions of the mucous gel coating the gastric mucosa, and a small proportion of the bacterial cells are adherent to the mucosa [5]. Initially, H. pylori resides in the antrum, but over time, migrates towards the more proximal segments of the stomach [6]. The organism is capable of transforming into a coccoid form, which represents a dormant state that may facilitate survival in adverse conditions [7]. Its spiral shape and flagella render H. pylori motile in the mucous environment, and its efficient urease protects it against acid by catalyzing urea hydrolysis to produce buffering ammonia [7, 8]. In vitro, H. pylori is micro-aerophilic and slow-growing and requires complex growth media [8]. The discovery of H. pylori not only introduced a whole new group of bacteria to science but also revolutionized our concept of gastroduodenal pathology and diverted the world wide attention from PH to HP [9]. Presently its role has been established in antral gastritis, duodena ulcers, chronic gastric ulcer, dyspepsia, gastric cancer and gastric lymphoma. World health organization (WHO) added H. pylori to its list of carcinogens [10]. H. pylori infection is one of the most common infections worldwide. The prevelance of infection is inversely related to socioeconomic status [11]. In developing countries the prevalence may be as high as 80%, while 40% of persons living in the United States are infected [11].

How does gastric H. pylori increase risk of duodenal ulceration?

The reason of H. pylori mediated D.U. remains unclear. One potential explanation is that gastric metaplasia in the duodenum of D. Upatients permits H. pylori to bind to it and produce local injury secondary to the host response. Another hypothesis is that H. pylori antral infection could lead to increased acid production, increased duodenal acid, and mucosal injury. Basal and stimulated (meal, gastrin-releasing

peptide (GRP) gastrin release are increased in H. pylori-infected individuals, and somatostatin-secreating D-cells may be decreased. H. pylori infection might induce increased acid secretion through both direct and indirect action of H. pylori and proinflammatory cytokines. H. pylori infection has been associated with decreased duodenal mucosal bicarbonate [6, 12].

Diagnosis of H. pylori infection

A. Non-invasive methods

1. C^{13} urea breath test: This is a quick and easy way of detecting the presence of H. pylori and is used as a screening test. The measurement of CO2 [13] in the breath, after ingestion of C [13] urea, requires a mass spectrometer, which is expensive. The breath test is also used to demonstrate eradication of the organism following treatment.
2. Serological tests: Detect IgG antibodies and are reasonably sensitive (90%) and specific. They are used in the diagnosis and in the epidemiological studies.
3. Stool test: A specific immunoassay using monoclonal Ab for qualitative detection of H. pylori antigen is widely available. It's useful in the diagnosis of H. pylori infection and for monitoring efficacy of eradication therapy.

B. Invasive methods

1. Rapid urease test: Gastric biopsies are added to a urea solution containing phenol red. If H. pylori are present, the urease enzyme splits the urea to release ammonia which raises the pH of the solution and causes a rapid colour change.
2. Culture: Biopsies can be cultured on specific medium and sensitivity to antibiotics can be obtained.
3. Histology: On routine Giemsa stain section of gastric mucosa [13].

Aim of study

To detect the different underling OGD causes of dyspeptic symptoms in patients presented to the outpatients clinic of the gastroenterology unit in Al-Ramadi teaching hospital, and their microbiological correlate.

Materials and Methods

From January 2010 to September 2010, eighty patients with various upper gastrointestinal complaints (epigastric pain, heart burn....etc) were evaluated by OGD in the gastro endoscopic unit in Al-Ramadi teaching hospital.

In all patients after fasting for at least 4 hours an OGD was done using fibroptic (FG29w Pentax) endoscope. Blood samples were collected from patients (5 ml of venous blood) serum was separated and stored frozen for further processing. Preliminary screening dipstick assay was performed to detect the presence or absence of H. pylori serologically, after that confirmatory anti H. pylori lgG was done by enzyme linked immunosorbent assay with DRG (Germany) kit.

The results were interpreted as positive if the optical density is (1.192 Du / ml) and above, and it considered negative if optical density (0.357 Du/ ml) and below, and all the recording between (1.192 0.357) were reflected the grey zone result (equivocal results), were regarded as negative too.

Results

In the present study there was a great correlation between H. pylori infection with CA stomach(20) (100%), P.U. disease (71%), gastritis (63%), erosions (57%) respectively, while a correlation was negligible with GERD and gastric polyps (21) as shown in table (1) and figure (1) and (2)respectively.

Table 1: OGD findings with their dipstick assay ELISA.

OGD diagnosis		No. of patients	(+ve Elisa) (-ve dipstick)	(+ve Elisa) (-ve dipstick)	(+ve Elisa) (-ve dipstick)	(+ve Elisa) (-ve dipstick)	Total %
Normal OGD	No. perentage	4252.5%	00%	819%	12 29%	22 52%	100%
P.U	No. perentage	1721.25%	16%	16%	11 65%	4 23%	100%
Gastritis	No. perentage	810%	00%	00%	5 63%	3 38%	100%
Erosions	No. perentage	78.75%	00%	114%	4 57%	2 29%	100%
GERD	No. perentage	22.5%	00%	00%	0 0%	2 100%	100%
CA Stomach	No. perentage	22.5%	00%	00%	2 100%	00%	100%
Polyps	No. perentage	22.5%	00%	150%	00%	150%	100%
Total	No. perentage	80100%					100%

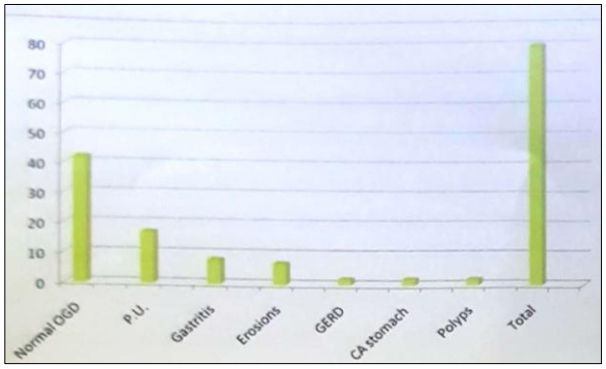

Fig 1: OGD findings in dyspeptic patients

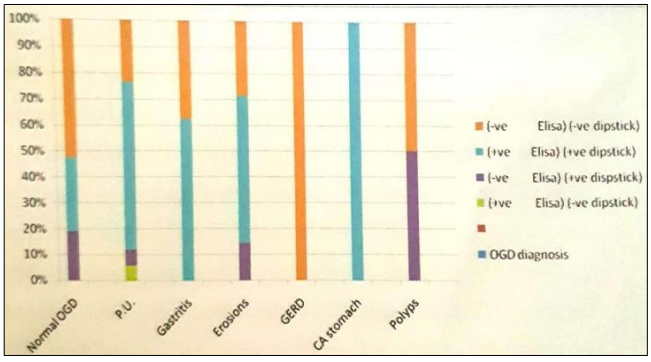

Fig 2: H. pylori assay in different OGD findings

Discussion

A variety of methods have been used in the diagnosis of H. pylori infection. Most of the methods are invasive because they require OGD to obtain biopsy sample of gastric mucosa for further analysis and detection of H. pylori infection. The other group of methods are non- invasive because they do not require OGD, and H. pylori infection can be detected by the presence of antibodies in serum samples (serology), and by the bacterial urease activities (urea breath test) [14]. Serologic methods, compared with other methods, are convenient for the patients, easy to perform, do not rely on the accuracy of specimen sampling, and are sufficiently sensitive to detect new cases of H. pylori infection) [15], ELISA is most widely used in the detection (qualitative) and measurement (quantitative) of the level of specific antibodies in serum samples [16]. Recommendations for the diagnostic methods used for detecting H. pylori infection have changed and now it is even generally accepted that the role of serology in detecting the infection is crucial. The latest European guidelines on the management of H. pylori infection, the Maastricht Consensus Report, emphasized the special role of serology compared to other diagnostic tests (Malfertheiner *et al*, 2007) [17]. Proton pump inhibitor treatment prior to testing can lead to false negative results in other diagnostic tests than serological assays [17]. In the present study H. pylori infection was detected in (44%6) of patients by anti H. pylori antibody (IgG), and (56%) by dipstick assay. These results are inconsistent with other studies [9, 18].

This may be attributed to the followings

1. Significant heterogeneity among isolated H. pylori strains from different geographic regions, cross reactivity with other enteric pathogens can be possible reasons for uncertain results in determining H. pylori infection using imported ELISA kit [19]. Therefore, the sensitivity and specificity of an assay in a particular population may not necessarily applied to another.
2. Another explanation for this discrepancy between our results and the recorded data of other studies [18], is the equivocal (gray zone) results which was regarded as negative in our study and this made our results lower than others, and this may be due to: A over the counter use of antibiotics leading to reduction in serological titer within several months to several years, but does not always become negative.

B the patient might receive an eradication therapy for H. pylori, and the level of H. pylori antibody within six weeks only falls to 50-60% from the level before treatment [18].

Conclusion

The invasiveness and cost of endoscopy and the difficulty to perform urea breath test and stool antigen to all patients makes serological tests as a much convenient alternative so it was selected in our study's. H. pylori role in dyspepsia seems to be an important risk factor that should be considered, discovered and eradicated However, further studies may be needed in larger number of patients to establish ELISA test as a conclusive procedure.

Recommendations

Serologic screening of younger dyspeptic patients by ELISA for H. pylori enables identification of those who are at risk of having serious gastroduodenal lesions and therefore are most likely benefit from an accurate endoscopic diagnosis. We recommend ELISA test as a screening procedure, and if the titers are insignificant the role of invasive methods just to make the diagnosis of H. pylori infection in dyspeptic atients is not warranted. So trial to do other more specific tests for H. pylori like urea breath test seems to be important. Serology based tests are also recommended as the first choice for diagnosis. Detection and eradication of H. pylori infection has been identified as the first step in the management of dyspepsia.

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