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Role Of Endoscopic Gastric Biopsy in Patients With Chronic Dyspepsia For Diagnosis Of H. Pylori

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Abstract

Objective: To determine the role of upper GI endoscopy and gastric biopsy to rule out H. Pylori (in patients with long-standing stomach symptoms), which is a manageable cause of chronic dyspepsia.
Methods: This cross-sectional study was conducted at the medical OPD Sheikh Zayed Hospital, Rahim Yar Khan. The sample size was 125 patients, having symptoms of chronic dyspepsia. Endoscopy of the participants has been done after getting informed consent. After histopathological analysis, the results were analyzed by SPSS version 23.0. The presence of H pylori has been evaluated in participants of different age groups, residences, symptoms, and conditions.
Results: According to the analysed results, a total of 85 (68%) participants have been diagnosed with the presence of H. Pylori. Prevalence of H. Pylori is highest in the age group of 50 and above i.e. 28 (73.7%), followed by the age group 30-49 43 (67.2%), (p=0.5). There is a slightly higher ratio of H. Pylori in males i.e. 47 (72.3%) than in females i.e. 38 (63.3 Chronic dyspepsia patients who had a gastric ulcer on endoscopy had a dominant proportion of 20 (83.3%) who had H. pylori too on biopsy (p=0.07), similarly, patients who had duodenal ulcers also showed a dominant proportion 29 (80.5%) of a positive result for H. pylori on biopsy (p=0.05).
Conclusion: The presence of H pylori was more than in patients above 30 years of age. So, it is better to have an endoscopic investigation to rule out any malignancy. Endoscopy is more beneficial and easily available in most parts of the country.
Keywords: Endoscopy, biopsy, dyspepsia, Helicobacter Pylori.

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1. Introduction

Dyspepsia is commonly characterized as upper abdominal discomfort or pain, with concomitant symptoms such as fullness, bloating, heartburn, acid regurgitation, or early satiety for over a period of 4 weeks.[1] These symptoms frequently present in different subgroups including dysmotility-like, ulcer-like, reflux-like, or unspecified dyspepsia. It is a common condition with about 40 % prevalence in the general population. Dyspepsia is generally divided into two types; Organic and Functional Dyspepsia. Organic Dyspepsia is defined as one having a substantial cause e.g. ulcer, infection, etc. Whereas functional dyspepsia usually lacks a definite cause behind the disease.[2] Dyspepsia is not a condition, but rather a set of symptoms linked with a variety of illnesses. In the majority of instances, no currently diagnosable organic condition is discovered, and the diagnosis is classified as functional or idiopathic.[3]

Dyspepsia is commonly associated with Helicobacter Pylori diseases including peptic ulcer and gastric cancer. The diagnostic criteria are mainly based on clinical assessment which is known as Rome Criteria IV. These infections produce increasing physiological and anatomical gastroduodenal destruction that can lead to peptic ulcer disease and associated consequences. The diagnostic procedures for identifying H. pylori infection may differ, and the choice of one way or another is influenced by several factors, including the availability of diagnostic tests, the necessity for an endoscopy, the benefits, drawbacks, and cost of each method, as well as the patient's age. There are now invasive and non-invasive methods for detecting H. pylori infection.[4-6] Non-invasive tests include stole antigen test, serology, and urea breath test (UBT). While invasive methods of investigation, including histology, rapid urease test (RUT), microbiological culture, and polymerase chain reaction, also known as biopsy-based examination require endoscopy. Currently, endoscopy is routinely done in healthcare facilities followed by histopathological diagnosis. An acceptable histopathological examination is based on two major factors including an expert pathologist and

standardized biopsies. Wrong biopsies, investigation errors, topographical changes in the mucosa, microbial density and its division, and the types of stain could affect the results.[5] Endoscopy can also detect various causes of gastrointestinal discomfort such as duodenal ulcers, gastric ulcers, gastropathy, and malignancy. All of these techniques, including invasive and non-invasive, have their pros and cons.[7,8] Non-invasive tests would be not suggested in patients with positive symptoms of underlying malignancy which could be due to excessive intake of non-steroidal inflammatory drugs or due to old age. Consequently, there is a gap in evidence-based diagnosis of H. pylori dyspepsia. Aside from standard blood and stool tests, a third, far safer, and more reliable procedure for effective identification should be used, which may rule out not just H. pylori but a variety of other GI disorders, including cancers.[9,10] It would be beneficial for both the patient and the healthcare professionals if a technique, which aims to provide better clarity of the condition with early diagnosis, and prompt and more tailored treatment options, is used. Furthermore, it will also reduce the use of unnecessary medications and thus healthcare costs. The purpose of this study was to determine the of upper GI endoscopy and gastric biopsy to rule out H. Pylori (in patients with long-standing stomach symptoms), which is a manageable cause of chronic dyspepsia.

2. Materials & Methods

This cross-sectional study was comprised of patients who presented in medical OPD of Sheikh Zayed Hospital, Rahim Yar Khan, between the duration of January 2023 to June 2023. A total of 125 patients of both genders with complaints of abdominal pain, discomfort, acidity, and loss of appetite for more than 4 weeks have been recruited. Patients who were under the age of 10 and also who were receiving H2-receptor blockers, antimicrobial therapy, proton-pump inhibitors, and nonsteroidal anti-inflammatory drugs 30 days before endoscopy were excluded from the study. The participants have been advised of Upper Gastrointestinal endoscopy. The study has been approved by the IRB committee of the institution. Biopsies from different parts of the stomach including the antrum and body were sent to and analyzed by the Histopathology Department of the Institute. The results were analysed using SPSS version 23.0. Different variables were used to assess the results including age, sex, residence, symptoms, endoscopic findings and biopsy results. Descriptive statistics was used to summarize the data. Data was reported in the form of frequencies and percentages. The chi-square test was used to compare different variables concerning H. pylori status.

3. Results

A total of 125 patients have been included in this study with the symptoms of dyspepsia. The ages of the participants ranged from 10 years to more than 70. They were divided into three groups based on age. Other variables include gender, residence, and symptoms of dyspepsia including Gastroesophageal Reflux, Bloating and different GI conditions. An endoscopy was done and biopsies of 125 participants were collected on which identification of H. Pylori has been performed. According to the analysed results, a total of 85 (68%) participants have been diagnosed with the presence of H. Pylori. In Table 1, the prevalence of H. Pylori is highest in the age group of 50 and above i.e. 28 (73.7%), followed by the age group 30-49 43 (67.2%). (p=0.5).

Table 1: Prevalence of Helicobacter Pylori in different age groups

Presence of H. pylori	Age Categories (Years)			Total	P value
	10-29	30-49	50 and above		
Positive n (%)	14 (60.8 %)	43 (67.2%)	28 (73.7%)	85 (68%)	0.5
Negative n (%)	9(39.2%)	21(32.8 %)	10(26.3 %)	40(32%)	

According to Table 2, the prevalence of H. Pylori is almost equal in urban and rural units of Rahim Yar Khan, Pakistan. There is a slightly higher ratio of H. Pylori in males (47) than females (38). According to recorded symptoms, 53 out of 75 patients with the complaint of epigastric pain have positive H. Pylori while 32 out of 50 patients with the absence of epigastric pain have positive H. Pylori. A total of 65 participants complained of gastroesophageal reflux, 45 out of them have positive H. Pylori while 40 out of 60 participants with missing gastroesophageal reflux have positive H. Pylori. According to Table 2, the prevalence of H. Pylori in patients with the complaint of bloating, the most dominant symptom of chronic dyspepsia, is 75 (65.2 %), and in patients with no bloating is 10 (100 %). Endoscopic findings were also taken into account which

had close association with the presence of H. pylori. About 99 (79.2%) had findings consistent with gastritis. On biopsy 69 (69.6%) were found positive. Chronic dyspepsia patients who had a gastric ulcer on endoscopy had a dominant proportion of 20 (83.3%) who had H. pylori too on biopsy (p=0.07), similarly, patients who had duodenal ulcers also showed a dominant proportion 29 (80.5%) of a positive result for H. pylori on biopsy (p=0.05).

Table 2: Prevalence of Helicobacter Pylori concerning residence, gender, and symptoms

Variables		H. Pylori		P value
		Positive	Negative	
Sex	**Male**	47 (72.3%)	18 (27.7%)	0.2
	Female	38 (63.3%)	22 (36.7%)	
Residence	**Urban**	42 (63.6%)	24 (36.4%)	0.2
	Rural	43 (72.9%)	16 (27.1%)	
Epigastric Pain	**Yes**	53 (70.7%)	22 (29.3%)	0.6
	No	32 (64.0%)	18 (36.0%)	
Gastroesophageal Reflux	**Yes**	45 (69.2%)	40 (66.7%)	0.7
	No	20 (30.8%)	20 (33.3%)	
Bloating	**Yes**	75 (65.2%)	40 (34.8%)	0.08
	No	10 (100.0%)	0 (0.0%)	
Duodenal Ulcer	**Yes**	29 (80.6%)	7 (19.4%)	0.05
	No	56 (62.9%)	33 (37.1%)	
Gastric Ulcer	**Yes**	20 (83.3%)	4 (16.7%)	0.07
	No	65 (64.4%)	36 (35.6%)	
Gastritis	**Yes**	69 (69.7%)	30 (30.3%)	0.4
	No	16 (61.5%)	10 (38.5%)	

4. Discussion

For a while, the use of simple non-invasive H pylori tests in place of endoscopy in establishing a course of treatment for individuals with uncomplicated dyspepsia has been a source of contention. This study has some interesting findings related to the presence of H. Pylori. The outcomes have been parallel with endoscopic findings and investigation methods have also had an impact on the findings. In the context of clinical practice, a rapid and cost-effective approach for detecting H. pylori infection is expected. A variety of procedures can be used to identify H. pylori infection. Urease testing, histological investigation, PCR, bacterial culture, UBT, stool antigen detection, and serology are all important ways of identifying H. pylori infection.[10] We modified the invasive (biopsy) methods of identifying H. pylori in this investigation and found that histopathology and PCR are better diagnostic approaches.

Research in the past has indicated that endoscopic inspection is beneficial, even if the results are negative because it reassures patients and decreases their overall anxiety. Non-endoscopic examination procedures are frequently thought to be unsuitable for patients who are very concerned about an underlying severe disease at the time of presentation. However, a previous study found that endoscopic and non-invasive breath testing provided comparable comfort to the most concerned patients.[8,9] Another crucial factor to consider while determining which investigation to utilise is the patient's acceptance of the treatment itself. Patients said that the breath test was less painful and stressful than the endoscopy. Endoscopy is now often carried out without sedation, and most patients find the operation uncomfortable and indicate a desire not to go through it again.

According to a previous study H. pylori infection was diagnosed in 85% of patients. There was no significant difference in sex- and age-related distribution (<50 years age group and >50 years age group) of H. pylori infection. However, association of H. pylori infection was positive in 45 (83.3%) of patients with endoscopic abnormalities.[11] According to the current study, there is a slightly lower prevalence of H. Pylori in males. In a previous study, Overall, 1442 (75.3%) patients were positive for H. pylori infection. The frequency of H. pylori infection in mild GERD patients was higher than the severe GERD, but this difference was not significant ($P = 0.214$). Except for sociodemographic status ($P < 0.001$), other variables including gender, age, ethnicity, body mass index (BMI), smoking, and presence of hiatus hernia in patients had no significant association with the frequency of H. pylori infection.[12] In terms of curing underlying ulcers, the utility of the test and eradicate H pylori method in patients with heartburn or reflux was thus rather low. It has lately been advocated that this technique be confined to individuals who have more ulcer-like symptoms, as this minimises the number of patients who receive H pylori therapy per

each ulcer treated.[11] In the present study, bloating was the most common symptom present in H. pylori-positive patients followed by epigastric pain and gastroesophageal reflux. Gastric ulcer and duodenal ulcer were the dominant conditions in H. pylori-positive patients.

A previous study showed that the mean change in dyspepsia score was 4.8 in the group that underwent non-invasive H pylori testing and 4.6 in the group that underwent endoscopy (95% confidence range for difference –0.7 to 0.5, P=0.69) in 586 individuals who were followed up at 12 months. A mere 8.2% of patients who underwent follow-up and were randomly assigned to a breath test alone were subsequently referred for an endoscopy. Both groups comparably utilised non-endoscopic resources. The two groups' levels of quality of life, overall patient satisfaction, worry about missing pathology, and reassurance value were comparable. Compared to endoscopy, whether under sedation or not, the patients said that the non-invasive breath test treatment caused them less discomfort and suffering. No potentially dangerous pathology needed to be treated other than getting rid of H pylori.[12] Another research, conducted by Asante et al, looked at 154 individuals under the age of 45 who had upper gastrointestinal symptoms such as heartburn or reflux and were found to have a negative H pylori serological test result. The patients were randomly assigned to either endoscopy or no endoscopy and were monitored for two years. There were no differences between the two analysis methodologies in terms of dyspepsia resolution, drug usage, or visits to the general practitioner. Over two years, the use of endoscopy was reduced by 83%.[13]

Our research faces a few limitations. Initially, no data on proton pump inhibitor (PPI) usage was provided in this investigation. Because some patients had previously used PPI and others often self-medicate, we can compare the effects of PPI on the malignancy and symptoms by obtaining biopsies of both types of patients i.e. patients taking PPI and those not. According to some previous studies,[14,15] and AGA guidelines,[16] collection of biopsies from both the antrum and the body to diagnose H. pylori infection has been performed, however, PPI intake may lower H. pylori colonization density and lead to false negative results at histopathological evaluation. Secondly, it would be better to obtain samples from each part of the stomach separately if precancerous lesions were found in endoscopy surveillance.

5. Conclusion

In this study, it was found that the presence of H pylori was more in patients above 30 years of age. So, it is better to have an endoscopic investigation to rule out any malignancy. Endoscopy is more beneficial and easily available in most parts of the country. According to our data and its exclusive findings Endoscopic Biopsy may be considered a productive tool for the diagnosis of chronic dyspepsia and its treatment on lines of H. pylori infection. Endoscopic biopsies, even from normal-appearing gastric mucosa, improve the possibility of detecting gastric cancer at the precancerous stage, particularly in individuals infected with H. pylori. The link between H. pylori infection and precancerous and cancerous diseases is widely established.

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M.Z.M, G.M - Conception of study
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