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Original Article

The H. Pylori Infection, Erosive Esophagitis & Non-Erosive Reflux Disease in GERD

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Abstract

Objective: To determine the prevalence of infection with Helicobacter pylori in GERD patients and compare the incidence of erosive esophagitis and non-erosive reflux illness in those patients.

Methods: This descriptive cross sectional was done at Medical division of Mayo Hospital Lahore from 6th Dec 2021 to 6th June 2022.Total of 150 patients fulfilling the inclusion criteria were enrolled after taking informed consent. Endoscopy was performed in all patients. Both non-erosive reflux disease and erosive esophagitis were found endoscopically. All patients had tissue biopsies obtained for histopathology, which were then forwarded to the pathology lab for H. pylori detection.

Results: Out of 150 patients, 58.7% (88) were female and 41.3% (62) were male. These patients were between the ages of 15 and 65. They were split into two groups: younger people, whose ages ranged from 15 to 40 (mean: 26.84 ± 7.478), and middle-aged people, whose ages ranged from 41 to 65 (mean: 51.31 ± 7.378). 32% (48) of the population was in the middle age bracket, while 68% (102) were among the young. 13.3% (20) of the patients had erosive esophagitis, while 86.7% (130) had non-erosive reflux illness. 20% (4) of patients with erosive esophagitis and 29.23% (38) of individuals with non-erosive reflux disease had H pylori infection. ($P < 0.3$).

Conclusion: Patients with GERD are more likely to have non-erosive reflux disease than erosive esophagitis on endoscopy, and non-erosive reflux disease is linked to a higher incidence of helicobacter infection.

Keywords: Gastroesophageal reflux disease (GERD), non-erosive reflux disease (NERD), and Helicobacter pylori (H.Pylori), Erosive esophagitis.

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Introduction

With 10% to 20% of the population reporting weekly symptoms, gastroesophageal reflux disease is currently the most common upper gastrointestinal ailment in western countries.[1] The prevalence in Asia has been recorded in a variety of ways, but is often lower than west ranging from 2.3% to 6.2%.[2,3] Studies using population-based surveys show that the prevalence is increasing. The aging, the obesity, changes in food, reduced physical activity and changes in sleep patterns are all potential causes for this.[4]

According to earlier studies, between 50% and 70% of people with GERD in the world are thought to have non-erosive reflux disease (NERD). Esophagitis or erosive gastroesophageal reflux disease is the term used to describe a person who has tissue damage. The condition known as non-erosive gastroesophageal reflux disease is characterized by symptoms without any visible tissue damage.[5]

It's debatable if Helicobacter pylori (H. pylori) cause GERD. Some says that the infection may help avoid GERD by changing the character of the refluxate gastritis causing achlorhydria, but others do not believe there is a connection between the infection and esopha-

geal disorders.[6,7] Treatment for H. pylori has not been demonstrated to make the symptoms of GERD or reflux esophagitis worse. However, it appears that proven H. pylori eradication significantly reduces GERD symptoms.[8] Regional variations affect the relationship between GERD and H. pylori infection.[9] It is common knowledge that getting rid of H. pylori heals peptic ulcers and prevents them from coming again.[10] Recent papers[11,12] have shown that there is no association between GERD and H. pylori.

Since the majority of studies are from western nations, we tried to examine the prevalence of H pylori infection among Pakistani patients and evaluate the frequency of erosive esophagitis and non-erosive reflux disease in these patients.

Methods

In the outpatient clinics of King Edward Medical University and Allied Hospital, a six-month descriptive cross-sectional study was conducted. Purposive non-probability sampling was carried out. With a 95% confidence level, an 8% margin of error, and the assumption that patients with GERD symptoms will have 51% more erosive esophagitis than predicted, a sample size of 150 cases is determined. Patients with gastroesophageal reflux disease symptoms such as retrosternal burning, epigastric pain, frequent nighttime symptoms, and acid reflux into the mouth for more than two weeks were included in the study; Patients using NSAIDS or aspirin concurrently, those on H2 blockers or proton pump inhibitors, or those who had received treatment for Helicobacter pylori in the past were excluded.

Once they had given their written informed consent and complied with the inclusion and exclusion requirements, all patients had endoscopies. Both non-erosive reflux disease and erosive esophagitis showed endoscopic outcomes. All patients had tissue biopsies taken. To maximize the diagnostic yield of histology, we obtained at least three biopsies, as indicated by Chey WD.[13] Biopsy specimen was sent to KEMU Lahore Pathology Lab for H. Pylori detection.

Statistical analysis: All of the data was entered and analysed using SPSS Version 12. Basic descriptive statistics including a mean and standard deviation were provided for continuous variables like age. GERD, NERD, and H pylori were examples of categorical variables that were described using frequency and percentage. The frequency of H pylori infection in patients with NERD and GERD was investigated using the Chi square X2 test. P values under 0.05 were considered significant.

Results

58.7% (88) of the 150 patients were women and 41.3% (62) were men. The age range of these individuals was 15 to 65. The participants were divided into two age groups: younger individuals, ages 15 to 40 (mean age 26.84 ± 7.378), and middle-aged individuals, ages 41 to 65 (mean age 51.31 ± 7.378). Of the participants, 32% (48) were older than the average age ($p < 0.8$) and 68% (102) were younger. Thirteen percent of the patients had erosive esophagitis identified, whereas eighty-seven percent (130) had non-erosive reflux illness. Of the patients, 28% (42) and 72% (108) were positive for H. pylori. (Table 1).

In comparison to older patients, younger patients showed higher levels of non-erosive reflux disease and erosive esophagitis. Of the 20 people with erosive reflux, 75% (15) are under the age of 40. Similar to this, 102 individuals with non-erosive reflux disease (78.46% of them) are younger ($p <0.4$). 40% (8) of erosive esophagitis patients were male, compared to 60% (12) female patients. Similarly, 41.54% (54) of patients with non-erosive reflux illness were male, compared to 58.46 (76) of patients with this condition ($p < 0.3$). 9.5% (4) of those with H. pylori positive esophagitis, compared to 90.5% (38) of those with non-erosive reflux syndrome. Similarly, 85.2% (92) of H. pylori negative people had non-erosive reflux syndrome and 14.8% (16) had erosive esophagitis. The majority of patients, both those with and without H. pylori, fall within the category of non-erosive reflux disease ($p< 0.3$). (Table.2)

Table 1: *Distribution According to Age, Gender Endoscopic Findings and H. PYLORI*

	Number (n = 150)	Percentage (%age)
Age (years)		
Mean + SD	35.02±8.42	
Range (min-max)	15-65	
Age Categories (years)		
15 to 40	102	68 %
41 to 65	48	32 %
Gender		
Men	62	41.3%
Women	88	58.7%
Endoscopic findings		
Erosive Esophagitis	20	13.3%
Non Erosive Reflux Disease	130	86.7%
Helicobacter Pylori		
Present	42	28%
Absent	108	72%

Table 2: *Endoscopic Findings Based on Gender, Age, and H. Pylori Status*

Age, years	Endoscopic Findings		p-value
	Erosive Esophagitis	NERD	
15-40	15	87	0.40
41-65	5	43	
Gender			
Male	8	54	
Female	12	76	0.047
H. Pylori			
Positive (42)	4 (9.5%)	38 (90.5%)	
Negative(108)	16 (14.8%)	92(85.2%)	0.3

Discussion

GERD symptoms are highly prevalent, affecting up to 20% of the population in North America, 12% to 15% of Australia , 9% to 17% of Europe and 2% to 5% of Asia once a week.[1] These patients account for around half of the gastroenterologist's workload. Despite conventional idea that there must be some ulceration or tear in the LES to cause GERD symptoms, this study found that the lower end of the oesophagus is usually normal and has no tear or ulcerations.

In our study, 13.3% (20) of patients had erosive esophagitis, while 86.7% (130) had non-erosive reflux illness. 20% (4) of patients with erosive esophagitis and 29.23% (38) of patients with non-erosive reflux syndrome had H pylori infection. In most studies, patients with non-erosive reflux disease are more likely to have Helicobacter pylori infection than those with erosive esophagitis on endoscopy. In one study, erosive GERD affected 53 individuals (51%) and NERD affected 51 patients (49.0%). Infection with HP was found in 41 (80.4%) and 32 (60.4%) of the NERD patients, respectively.[14] In a study done in Lithuania, NERD affected 49.0% of patients, while erosive esophagitis affected 51%. 80.4% of patients with NERD and 60.4% of people with erosive esophagitis, respectively, had HP infection.[15] Erosive esophagitis was found in 20.80% of patients and NERD in 10.60%, according to Du J et al.[16] Gatopoulou et al. found that NERD was present in 58% of patients and erosive esophagitis in 42% of individuals.[17] Seventy percent of the population had H pylori infection. H pylori status and NERD had no statistically significant correlation. H pylori+ and esophagitis had a statistically significant relationship. In a research conducted in Italy, 45.54% of patients had NERD while 54.46% of patients had erosive esophagitis. Infection with H pylori was discovered in 36% of people with erosive esophagitis and 62% of people with NERD.[18]

Differences in study results may be attributable to racial differences. Furthermore, this could be related to medical advances in the diagnosis of H. pylori on histology by pathologists. It should be noted that our study was carried out in a significant facility that offered tertiary (specialized motility clinic, referrals from specialists) as well as secondary (general gastrointestinal clinic, referrals from general practitioners) care. The results may not be applicable to people with dyspepsia receiving primary care, which should be considered when generalizing our findings.

Conclusion

Patients with GERD are more likely to have non-erosive reflux disease than erosive esophagitis on endoscopy, and non-erosive reflux disease is linked to a higher incidence of helicobacter infection.

Ethical Approval: The IRB/EC approved this study via letter no. G-2021/ERB/KEMU/321 dated 20-06-2021.

Conflict of Interest: None

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