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The Prevalence of Helicobacter Pylori in Biopsy-Confirmed Dyspeptic Patients in Vali Asr Hospital in Qaemshahr in the Year 2018

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Abstract

Background and Aim: Helicobacter pylori is the most important cause of gastritis and indigestion in humans. Considering the importance of this bacterium and its varying prevalence in different regions of the country, This study aimed to investigate the prevalence of Helicobacter pylori in biopsy-confirmed dyspeptic patients at Vali Asr Hospital in Qaemshahr in 2018.

Materials and Methods: This retrospective study was conducted on 2007 patients referred to the hospital. To diagnose Helicobacter pylori in histological studies, Giemsa staining was used, and then the data were entered into SPSS-V22 statistical software.

Results: The average age of the patients was 51.23±16.42 years (%46.7 male and %53.3 female). The prevalence of Helicobacter pylori was %42.7. The most common finding observed was moderate gastritis in %61 of patients and intestinal metaplasia with a frequency of %85.3. The relationship between the incidence of Helicobacter pylori infection and gender (P=0.369) and age (P=0.524) was not significant, but its relationship with types of gastritis pathology was significant (P=0.000).

Conclusion: Considering the high prevalence of Helicobacter pylori infection and the complications arising from it in infected individuals, there is a need for continuous monitoring, health education, and precise control of reinfection in the studied population.

Keywords: Helicobacter Pylori, Gastrointestinal Disorders, Dyspepsia.

Introduction

Helicobacter pylori (HP) is a gram-negative and microaerophilic bacterium that is often seen in a spiral shape in the stomach mucosa and in a curved form in culture media (1). This bacterium is considered the main cause of chronic gastritis and peptic ulcer (stomach ulcer) and is the primary risk factor for peptic ulcers, adenocarcinoma, and gastric lymphoma (2). There are several methods for diagnosing Helicobacter pylori infection in patients. The diagnostic methods can be divided into two categories: invasive and non-invasive (3). Among the invasive methods are endoscopy, culturing biopsy samples, staining samples, and identifying urease enzyme activity. Non-invasive methods include the urea breath test and serological tests (4).

Helicobacter pylori infection is one of the most common chronic bacterial infections in the world, particularly in developing countries. The epidemiological pattern of this infection differs between industrialized and developing countries. In developing countries, the prevalence of infection in young individuals is more than %80, while in developed countries it is less than %10 (5). Aside from age, another major risk factor for acquiring infections is poverty. Studies have shown that there is a close relationship between individuals' socioeconomic status and the prevalence of this infection (5). According to studies conducted in Iran, the prevalence of pollution among individuals aged 35 to 55 is between %88.4 and %93 and in individuals aged 10 to 25 years, %44.9 has been reported (6-7). Considering the

importance of this bacterium and its varying prevalence in different regions of the country, This study aimed to investigate the prevalence of Helicobacter pylori in biopsy-confirmed dyspeptic patients at Vali Asr Hospital in Qaemshahr in 2018.

Materials and Methods

This research was conducted retrospectively on patients who presented with dyspeptic symptoms at Vali Asr Hospital in Qaemshahr in The year 2018. The study samples were selected through a census of all individuals who had visited the hospital with dyspeptic symptoms, and the medical records of patients from whom a biopsy sample of their tissue was taken after examination by a physician and the tissue biopsy was sent to pathology, and the stomach biopsy samples were stained using the Giemsa method, and Helicobacter species were identified in the histological samples. After reviewing the file, the demographic information and pathology results were also entered into the checklist. The collected data in this study was entered into the SPSS-V22 statistical software and analyzed.

Results

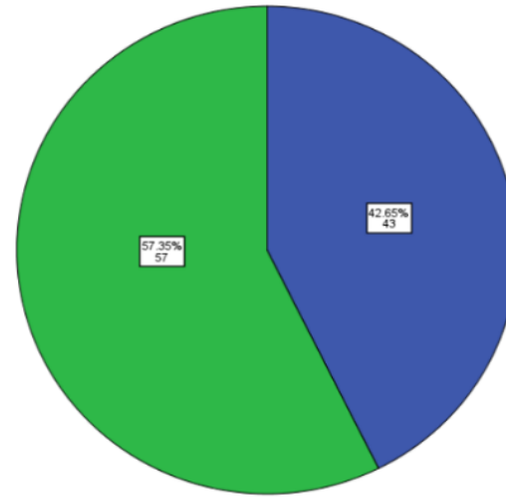
From 2007 patients under review, 938 patients (%46.7) were male and 1069 patients (%53.3) were female. the average age of patients was 51.23 ±16.42 years (with a range of 14-95 years). All patients in the pathological examination were affected by various types of gastritis according to Table 1. The most common gastritis based on pathology was moderate gastritis, observed in 1224 patients (%61 of the patients) studied.

Table 1: Frequency of types of gastritis in the studied patients

Types of gastritis	Abundance	Percentage of abundance
Mild	544	27.1
Moderate	1224	61
High	231	11.5
Erosio	8	0.4
Total	2007	100

In the examination of the prevalence of Helicobacter pylori, as shown in Chart 1, its prevalence was 856 (%42.7) cases (blue).

Pie chart 1: Abundance of Helicobacter pylori in patients studied



In the 1455 studied patients, no other noteworthy points were observed except for inflammation in the gastric pathology examination. The results of the examination of other individuals are shown in Table 2. The most common finding observed was intestinal metaplasia, with a frequency of %85.3.

Table 2: Frequency of findings other than inflammation in the studied patients

Finding other than inflammation	Abundance	Percentage of abundance
Intestinal Metaplasia	471	85.3
Intestinal Metaplasia + Dysplasia	10	1.8
Stomach Ulcer	1	0.2
Foveal Hyperplasia	23	4.2
Mild Glandular Hyperplasia	6	1.1
Hyperplastic Polyp	6	1.1
Reaction Change	29	5.3
Dysplasia	2	0.4
Mild Atypia	1	0.2
Epithelial Hyperplasia	1	0.2
Adenoma Velos	1	0.2
Intestinal Metaplasia + Adenoma Polyps	1	0.2
Total	522	100

In 219 patients (%46.5) with Helicobacter pylori infection, the simultaneous presence of

intestinal metaplasia in pathology was observed as the most common pathological finding alongside gastritis.

In the study of the relationship between Helicobacter pylori and gender, as seen in Table 3, no significant relationship was observed between these two parameters (P = 0.369).

Table 3. Relationship between Gender and Helicobacter pylori in the Studied Patients

ariable	Helicobacter **Pylori** (Positive)		Helicobacter **Pylori** (Positive)		mar Kay-Esquire	**P-Value**
	bundance	ercentage	bundance	ercentage		
ale	10	3.7	28	6.3	.808	.369
emale	46	1.7	23	8.3		

In examining the relationship between Helicobacter pylori and age, as shown in Table 4, no significant correlation between these two parameters was observed (P=0.524).

Table 4: The relationship between age and Helicobacter pylori in the studied patients

Variable	**Helicobacter pylori**	**Abundance**	**Average age (standard deviation)**	**P-value**
Age	Positive	856	50.96 (15.51)	0.524 T Independent
	Negative	1151	51.43 (17.07)	

In examining the relationship between Helicobacter pylori and types of gastritis pathology, as seen in Table 5, it was significant with a Pvalue of 0.000.

Table 5: The relationship between types of gastritis pathology and Helicobacter pylori

Types of gastritis pathology	**Helicobacter pylori (Positive)**		**Amar Esquire**	**Kay-**	**Amar Kay-Esquire**	**P-value**
	Abundance	Percentage	Abundance	Percentage		
Mild	26	4.8	518	95.2		
Moderate	621	50.7	603	49.3	556.21	0.000
High	206	89.2	25	10.8		
Erosio	3	37.5	5	62.5		

Discussion

In developing countries, Helicobacter pylori is a challenging health problem. The %20 prevalence of this infection among white adults in the United States is striking compared to the rate of over %90 in parts of developing countries (8).

A study in northwestern Iran, an area with the highest rates of mortality and morbidity due to stomach cancer in the country, reported Helicobacter pylori infection in %89.2 of the residents (9). The results of the present study showed that the prevalence of Helicobacter pylori infection was about %43. In the study by Myint and colleagues, the overall prevalence of Helicobacter pylori infection was %48 (10). In the study by Khasag and colleagues, the Helicobacter pylori infection was high in all patients with gastrointestinal disorders throughout Mongolia, and the overall infection rate was reported to be 80%. In Khasag study (2018), Helicobacter pylori infection was high in all patients with gastrointestinal disorders throughout Mongolia, and the overall infection rate was reported to be %80 (11). In the Oling study (2015), the prevalence of Helicobacter pylori was reported to be %36 [12]. As can be seen, the results in various studies have been different, such that the prevalence of Helicobacter pylori has varied from less than %15 in some populations to about %100, depending on the socioeconomic status and development of the country. Various studies have shown that in developing countries, the prevalence of Helicobacter infections is high and is associated with low education levels, socioeconomic status, and inadequate health conditions (13-14). Another reason for the difference in the results of various studies can be attributed to the differences in the sensitivity of the different tests used in these studies to identify this bacterium. In the current study, the prevalence of Helicobacter pylori infection in men was slightly higher than in women, but this difference was not significant. Of course, the prevalence of dyspeptic disorders, regardless of concurrent infection with Helicobacter pylori, was briefly higher in women than in men. According to reports by Lopez from Mexico (2008), Saribasak from Turkey (2004),

Zheng from Singapore (2000), Ahmad from Pakistan (2009), the prevalence of male patients is higher than that of female patients; However, Khayat from Lebanon (2007) and Micivleviciene from Lithuania (2008) reported that the prevalence of female patients is higher than that of male patients (15-20). In the study Alavi from Ahvaz (2009), Kargar from Shahrekord (2008), Maleki from Mazandaran, Rasmi from Ardabil and Mansour from Rasht (2009) the number of female patients is higher than that of males and in the study Jafari from Tehran (2009), the number of males was reported to be higher than that of females (21-24). It seems that men are at a higher risk of contracting Helicobacter pylori infection due to more activities and less adherence to hygiene compared to women, as the prevalence of infection has an inverse relationship with hygiene practices (25).

The average age of the patients studied was approximately 52 years, and the results of the present study did not show a significant relationship between age and infection with Helicobacter pylori. In many studies, including the current study, no significant relationship was observed between age and age groups and the incidence of Helicobacter pylori infection (26-27). However, some studies have reported a higher prevalence of Helicobacter pylori infection in the age group of 20-40 years compared to older age groups (27-28).

The results of the present study showed a significant relationship between the pathological degrees of gastritis and Helicobacter pylori infection, such that in about %90 of severe gastritis cases, concurrent Helicobacter pylori infection was also observed. The results of Myint's study were also consistent with the present study, and individuals infected with Helicobacter pylori showed more severe gastritis (10). In the Qasimi Basir (2017) study, most patients with severe Helicobacter pylori colonization suffered from moderate to severe gastritis. Additionally, in this study, a significant correlation was observed between the intensity of colonization of this bacterium and histopathological findings, including intestinal metaplasia (29). In the present study, the most common finding aside from gastritis was the pathological examination of intestinal metaplasia, which was observed in %47 of patients with concurrent Helicobacter pylori infection.

Conclusion

According to the findings of the present study, the prevalence of Helicobacter pylori in patients with dyspepsia was reported to be about 43%, and infection with this bacterium had a significant association with the observation of severe gastritis in pathological examination.

Conflict of Interest

The authors declare no conflicts of interest.

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