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Diagnosis study of Peptic Ulcer in Iraqi Patients students

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Abstract

Background: Even in the absence of a *Helicobacter pylori* infection, psychological stress and a need for fast food can cause peptic ulcer. Research on the relationship between sociodemographic traits and peptic ulcers has revealed a number of risk factors, including a packed family, poor income, unemployment, marital tension, and physical and mental strain. The aim of the current study is to determine the clinical picture of gastric ulcer based on medical history and social status in a sample of Iraqi patients. Methods: Students studying science and medicine who had signs of peptic ulcer disease were the subjects of a cross-sectional investigation. The sample was collected during the period of one year, November 2021 to February 2022. Initially, the procedure was elucidated to the patients, and informed consent was obtained from all enrolled individuals. Peptic ulcer disease was diagnosed by routine examinations, *Helicobacter pylori* diagnosis by stool antigen test, and gastroduodenoscopy of the patients, in addition to taking the medical history and information about the social status. Results: The study included 45 patients with peptic ulcer, 15 (33.33%) males and 30 (66.66%) females, aged 19-26 years. The control group was 25 healthy individuals, and their symptoms were either acute abdominal pain proven to be caused by peptic ulcer in the patients or hematemesis in 13 (28.88%) patients.

Conclusion: Peptic ulcers can be visualised and bleeding can occur, so there should be awareness of pain management and prompt treatment. There should be good and effective analgesia, reassurance, and empathy with patients, and advice on protection against gastric and intestinal ulcers when needed.

Introduction

The inner lining of the gastrointestinal (GI) tract breaking down as a result of gastric acid or pepsin release is a defining feature of peptic ulcer disease. It pierces the muscularis propria layer of the stomach epithelium. It typically affects the stomach and proximal duodenum [1]. There could be an impact on the lower esophagus, distal duodenum, or jejunum. In addition to reviewing the etiology, pathophysiology, and clinical manifestations of peptic ulcer disease, this exercise emphasizes the importance of the interprofessional team in its treatment [2]. Peptic ulcer disease (PUD) affects four million individuals annually globally [3], with a lifetime prevalence of 5–10% in the general population [4]. While PUD has become much less common worldwide in recent years [4], the frequency of associated consequences has not changed [5].

Four million people worldwide suffer from peptic ulcer disease (PUD) each year; the lifetime prevalence of the condition in the general population is believed to be between 5 and 10%. There are noticeable differences in the prevention, diagnosis, treatment, and follow-up approaches taken by healthcare systems worldwide when it comes to PUD.

Quantifying and benchmarking health system performance is challenging but essential to provide a more complete picture of potential global differences in the quality of care [6].

Regarding prevention, diagnosis, therapy, and follow-up, healthcare systems around the world employ somewhat different coping mechanisms when dealing with PUD [7]. Prevention has a positive relationship with both the growth of infrastructure and the effectiveness of healthcare systems [8]. Since cost and accessibility are the main factors influencing the diagnostic tests and treatment plans selected, quantifying and benchmarking the performance of health systems is crucial but challenging to do in order to paint a clearer picture of the possible global disparities in healthcare quality [10]. Uncomplicated PU disease has been less common in current years, mostly due to the identification and availability of treatment options. Treatment therapy for an infection caused by *H. pylori* [11–13]. The H. pylori virus affects more than half of the world's population, and it nearly invariably causes chronic gastritis. Then, serious side effects such as gastric adenocarcinoma, stomach MALT lymphoma, and peptic ulcer disease may manifest [14]. The majority of patients have no obvious clinical symptoms despite structural and functional problems brought on by persistently active stomach mucosal inflammation [15]. Peptic ulcer disease, often known as PUD, is the most prevalent condition affecting the duodenum and stomach and is linked to an infection with *H. pylori* . Duodenal, esophageal, and stomach ulcers are all included in Peptic Ulcer Disease (PUD) [16] figure 1 shown in Pathogenesis of peptic ulcer .

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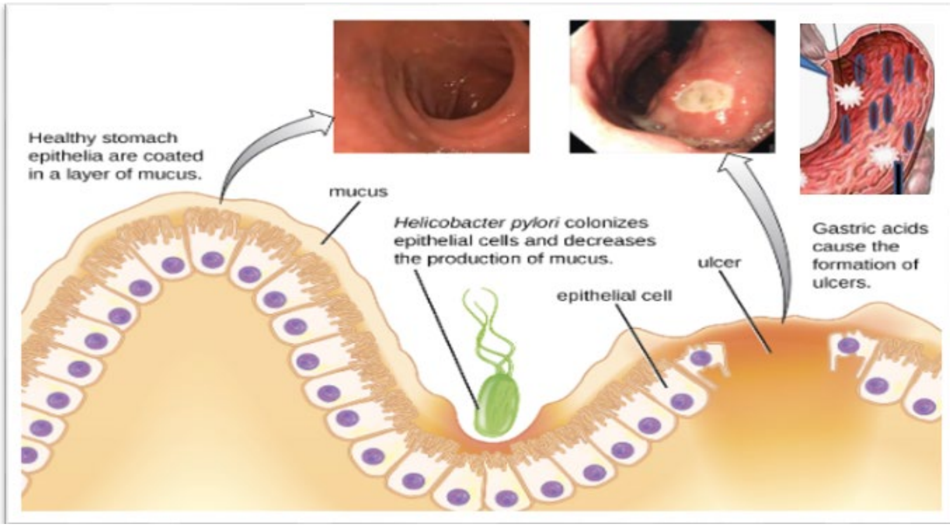

Figure 1: Pathogenesis of peptic ulcer

An ulcer that starts in the stomach and duodenum and spreads deep into the mucosa is known as a peptic ulcer or stomach ulcer. muscle mucosa, particularly in relation to the muscle layer, as a consequence of the stomach acid generation in the surroundings [17]. The possibility of developing many gastroduodenal diseases, such as ulcerative reflux disease (GERD), gastric atrophy with intestinal metaplasia, and there is a reported rise in bleeding and stomach cancer as one ages [18]. The unidentified genesis of peptic ulcer disorders is defined by painful sores that seem to form on their own or by unknown precursors. Peptic ulcers are acid-induced lesions that result in a denuding of the mucosa of the stomach and duodenum, with the defect extending into the submucosa or muscularis propria. Lesions that do not reach this depth are referred to as erosion [19]. PUD has caused some serious repercussions that have increased morbidity and death. Duodenal and stomach ulcers occur in different proportions among individuals globally; the disease usually strikes persons in their 30s to 60s, although it can strike at any age. In contrast to the United States, where duodenal ulcers are equally common, ulcers are uncommon among African Americans of African descent. In addition, duodenal ulcers are more common in men than in women [20, 21]. There are many intricate reasons why stomach ulcers might occur. For instance, alcohol and nicotine can increase the acid discharge by reducing or stopping the flow of mucus and bicarbonate. Duodenal ulcers in offspring are prone to develop in three times as many persons as in the overall population [22], suggesting that genetic factors may be involved. The discovery of *H. pylori* and ulcers linked to long-term anti-inflammatory medication usage has improved our understanding of the circumstances surrounding the development of peptic ulcers [23].

The study's objective is to ascertain, using medical history and social status data from a sample of Iraqi patients, the association between sociodemographic traits and stomach ulcer risk factors.

Materials And Methods

Between November 2021 and February 2022, a cross-sectional registry-based study was carried out at the hospitals of Karbala, specifically at the Gastroenterology and Liver Diseases Center and Al-Hussein Teaching Hospital. All recruited people provided informed consent once the process was initially described to them. For a period of one to two weeks, they were hospitalized for diagnosis and treatment. A total of 45 patients, ages 19 to 26, who visited the designated facilities and had endoscopic findings

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indicating they had peptic ulcer disease, comprised the study sample, and the control group was 25 healthy individuals. A unique questionnaire was used to examine each adult participant's case sheet in order to gather data on the study's outcomes at discharge, clinical features, and sociodemographic details.

Identification of Peptic Ulcer Disease

To confirm the diagnosis of peptic ulcer disease and differentiate between stomach and duodenal ulcers, an endoscopic examination was conducted Figure 2 shown in test to diagnosis *H.pylori*.

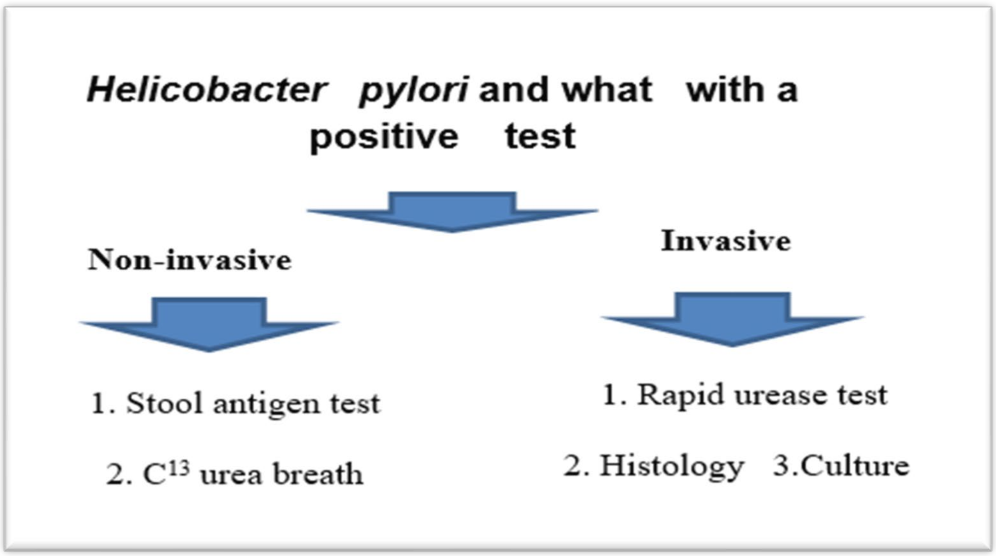

Figure 2: Laboratory diagnosis tests of *H. pylori*.

Identify *H. pylori* to patients

The *H. pylori* antigen found in stool is determined using the stool antigen test (SAT). It uses a test kit (*Helicobacter* Antigen Quick Castte, Bucharest, Romania) for immunochromatographic analysis. Before testing, let the test cast and samples come to room temperature. Put one milliliter, or roughly twenty drops, of the sample diluents into a test tube. Using a swab, add about a 5-mm-diameter sample chunk, and then gently shake to let the sample disperse and unstick. Give the test tube a thorough shake to ensure optimal sample dispersion. For sedimentation, let the tube sit for at least five minutes. Pour four drops of clear supernatant into the cassette's sample well. Read the result after 10–15 minutes. In the case of a positive result, a colored line might exist, while its lack indicates a negative result.

Statistical analysis

The statistical software SPSS-20 (statistical programs for social sciences, version 20) was used to analyze the data. Whether the data were continuous or categorical, data were shown using basic metrics such as range (minimum-maximum values), frequency, percentage, mean, and standard deviation.

Results

The total number of patients with gastric ulcers was 45, including 15 males (33.33%) (66.66%) and 30 females (66.66%), aged 13–26 years, with a mean age of 30.12 ± 15 years. Their biopsies were positive for Helicobacter pylori, and they had a history of other risk factors for gastric ulcer. The control group

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consisted of 25 healthy individuals, whose symptoms were acute abdominal pain proven to be caused by peptic ulcer in the patients or hematemesis in 13 patients (28.88%). The 1-year incidence of gastric ulcers in this study was 0.03% of patients who attended the hospital, and the surgery rate for perforated stress ulcers was 0.01%. The mortality rate was 1 (1.15%), and 1 patient (3.75%) required blood transfusion due to upper gastrointestinal bleeding. By asking patients about their eating habits, sleeping hours, social status, and monthly income, it was found that the highest incidence of back pain was in males due to their consumption of fast food and smoking. Also, the fact that students with limited income have a greater psychological impact on students than students with good income, shown in Table 1, compares between the patient and control individual.

Table 1: compare between the patients and control groups

Patients =45	Income	Fast food	Smoking	Number of hour (studying)	Number of hours to rest and sleeping
Male =15	1000$(10)	12	8	8-Oct	5-7 h
	More 1000$(5)				
Female =30	1500$(50)	20	0	8-Dec	4-6 h
	More 2000$(15)				
Healthy individual =25	1000-1500	5	0	6-Oct	6-Aug

Detection of the *H. pylori* infection

According to the prevalence of *H. pylori* infection as assessed by culture, 20 patients (44.44%) had *H. pylori* infection, while 25 patients (55.55%) did not. The prevalence of H. pylori infections varied significantly (P<0.01) between individuals with *H. pylori* infections (55%), and those without (44.3%). The prevalence of *H. pylori* infections varied significantly (P<0.01) between individuals with H. pylori infections (55%), and those without (44.3%).

Discussion

Worldwide, *H. pylori* infection is recognized to be extremely frequent. Nonetheless, the percentage of the infected population that develops peptic ulcer disease is very low. Several risk factors, such as fast-food consumption, stimulants such as tea and coffee, smoking, non-steroidal anti-inflammatory drugs, and painkillers, have been shown to play a role in disease outcomes. In the study by [24], a total of 2953 patients—86% of whom were male—were operated on for complications related to pressure ulcer disease (PU disease). Worldwide rates of non-complicated PU disease have dropped as a result of the prevalent use of PIPs for PU therapy and the development of *H. pylori* abolition medications. Regarding problems with PU, the findings are a little debatable. Lee and others [25]. The temporal patterns in the incidence of blockage caused by PU were not well studied. According to a report, among patients who needed surgery, blockage accounted for the least amount of specific causes (12.9%) of PU illness [26].

Helicobacter pylori infection is a major global source of morbidity and mortality. Since the discovery of *H. pylori*, a number of studies have been carried out to ascertain the incidence of the bacteria among gastroduodenal symptoms. There were twenty-five female and thirty male patients who tested positive for *H. pylori.* This result was similar to that of [27] in terms of *H. pylori* positivity, where the male gender exhibited only a slight predominance. [27]. When it came to *H. pylori* positive, the male gender had a very slight majority. The majority of patients with *H. pylori* positive are male, per a study by [28]. This may be due to the fact that men are far more likely than women to be infected, and there is contradictory

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data in the literature about the relationship between *H. pylori* infection and sex. It is conceivable that infections treated with antibiotics meant for different illnesses may be more common in women [29].

The study's findings, which were consistent with those of [30], who observed a significant frequency of duodenal ulcer in the male gender of the Brazilian population with positive *H. pylori* infection, indicated a male preponderance with DU in *H. pylori* positive patients. This was thought to be a significant factor in determining the course of gastrointestinal illnesses. Moreover, [30] and [31] found that women had a much lower incidence of duodenal ulcers than did men. More than half of people globally have an *H. pylori* infection, which is the root cause of numerous gastroduodenal disorders. 3491 children (0–18 years old) participated in the population-based, prospective, cross-sectional study carried out by [32]. They discovered that there were no appreciable differences in infection rates by gender, with an overall rate of 6.8%. Age was associated with higher infection rates, which varied significantly between locations ($P<0.05$). Due to the high frequency of *H. pylori* infection, the infection rate rising with age, and the infection's potential pathogenicity, it's critical to precisely identify antibiotic resistance and *H. pylori* in both adults and children, regardless of symptomatology. Regarding employment position and income level, there were no disparities observed. may be imprecise in accurately assessing the socioeconomic status of each participant [33]. It should be highlighted that although Latvia's economy has grown rather quickly over the past ten years, the shadow economy still accounts for a large portion of the country's GDP (22% in 2017).

In light of the aforementioned, lifestyle traits in the current study sample might be a stronger indicator of socioeconomic and educational position. This could help to explain why, in multivariate analysis, there were still significant correlations between *H. pylori* and dietary or lifestyle factors but not with wealth or education. The association between H. pylori, smoking, and binge drinking that was discovered in both univariate and multivariate analyses could be attributed to lower socioeconomic status and education levels. The study population's income and education levels were compared to these lifestyle choices, and the results showed that while smoking was less common ($p = 0.04$) among those with higher incomes and education levels, binge drinking increased ($p<0.001$) and did not significantly correlate with education ($p = 0.34$). With a few exceptions [34, 35], the majority of other studies found no evidence of a substantial relationship between smoking, alcohol consumption, and H. pylori [36- 38].

Conclusion

Based on the data collected for this study, we can conclude the following: The occurrence of Helicobacter pylori infection was lower in gastric ulcer patients (66.7%) than in duodenal ulcer patients (75.9%). The results of the study showed that social factors, food quality, and stress have an effect on the occurrence of gastrointestinal diseases.

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