

Exam Anxiety (High Epinephrine -EAE) and infected with (*Helicobacter pylori*) of the students Volunteer

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Summary

This is the second research was take place to microbiological and physiological evaluations have shown that Exam anxiety (EAE) can alter the health of stomach of students during exam and this lead to infected with *Helicobacter pylori* was known as a pathogen related to peptic ulcers and gastric carcinoma . We observed into whether pharmacy students through exams are stressful enough to cause changes in gastric secretion as consequences *Helicobacter pylori* infected. Procedures: This study designed to evaluate *H. pylori* infection in student during exam had morning sickness nausea and vomiting related to the anxiety and gastric secretion. casual sample of female and male second stages of students from college of Pharmacy in Al-Qadisiyah University carried to inspect were taken before second final-course exam and during the exam of mid-course determination(1 month). Finally, from 137 students 87 student were infected (20-21years) , with sever to moderate nausea attended the outpatient and specialized clinic. The serological frequency of *H. pylori* was 63.5% in students, compare with non-infected students 36.5% of the cases who had mild gastric pain, nausea, and burning of the stomach due to anxiety from exam. Most infected student with *H. pylori* were the severe symptoms (57.5%) moderate (28.%), and mild (20%) cases. This study found that severe nausea and vomiting, dyspepsia, and other gastrointestinal symptoms during exam were increased with the infection by *H. pylori*; and the same times may be gastric secretion increased significantly ($p \leq 0.001$) condition consequently, it is a danger factor for difficulties in student and its poor outcomes, especially in developing countries, such as Iraq. These results can be minimized by improving the socioeconomic and public health conditions. *H. pylori* infection in student is considered a main health problem and should be treated before . Further investigations are required in this regard and researchers are recommended to conduct studies on the Exam anxiety to recognize How it has the specific pathophysiology related to *H. pylori* infection.

Key words: *Helicobacter pylori*, Exam Anxiety , Epinephrine, Gastrin , students, Exam

Introduction

Helicobacter pylori (*H. pylori*) infection was found to be more prevalent in developing countries than in developed countries in the early 1980s. *H. pylori* Bacteria that colonizes the stomach and plays a role in a wide range of gastrointestinal diseases and disorders are known as *Pylori* bacteria. Bacteria that causes peptic ulcers and gastric cancer in late adulthood is the world's most common acute and chronic infection ¹. The World Health Organization and the International Agency for Cancer Research have both identified *H. pylori* as a pathogen with high certainty. *H. pylori* infection was found to be more prevalent in

developing countries than developed countries at the beginning of 1982. Bacteria that colonizes the stomach and causes stomach ulcers is *H. pylori*.

carcinogen Class I in 1994 ². Nausea and vomiting have been deemed routine signs and symptoms in student , especially in sever case, which represent very unpleasant stomach symptoms- morning sickness, increased temperature, burning sensation of stomach, gastric pain, vomiting, headache, and pomposity that could be due to gastric and gastric enzymes activity in students. About 30-65% of students have these symptoms in different degrees. In severe cases, occurring more than 3 times

vomiting daily and decreasing about 5% of body weight. ketonuria, drying, Because H^3 . pylori infection is nearly always accompanied by gastritis, a different diagnosis should be considered if there isn't any. If left untreated, *H. pylori* gastritis usually begins as diffuse antral gastritis and eventually spreads to the gastric corpus. Chronic active gastritis alterations may be linked to intestinal metaplasia or dysplasia⁴. Chronic usage of proton pump inhibitors may increase proximal migration of organisms that cause corpus gastritis. Acute inflammation goes away quickly after therapy, while chronic inflammation, which includes lymphoid follicles, can last years. Immunohistochemistry testing may be required to detect *H. pylori* organisms in patients receiving antibiotics, long term PPI medication, or other hypochlorhydria states susceptible to gastric bacterial overgrowth^{5,6}. It is impossible to predict the pathophysiology of *H. pylori* infection and its subsequent clinical outcome because the host and bacteria interact in a complex way that is influenced by the environment and altered by a number of unknown factors. *H. pylori* binds to the tissue and then releases enzymes and other microbial metabolites that harm the cells. *H. pylori* strains with functional differences coexist, which could be related to their virulence and the amount of tissue damage they cause in the host. On either hand, similar *H. pylori* strains may release a variety of virulence factors, making it difficult to determine which components are most important in the disease's etiology^{7,8}. In spite of *H. pylori*'s innocuous nature, it causes a powerful immune response⁹.

Materials and Methods

The study enrolled program 137 male and female students from pharmacy College at second stage, firstly: questionnaire form about the exam anxiety for 1 month, second we was detected some symptoms of anxiety with difficulty to questions answer. Thirdly measure gastrin enzyme and Pylori analysis (serological tests). This cross-sectional study was performed on students of (20-21 years) in Al-Qadisiyah University, Iraq, from March to April 2021. A total of 137 Second students presented with the

symptoms of morning sickness, including nausea and vomiting, burning sensation of the stomach, gastric pain, flatulence, dyspepsia, or other symptoms, with no past, connected with depression and exam anxiety

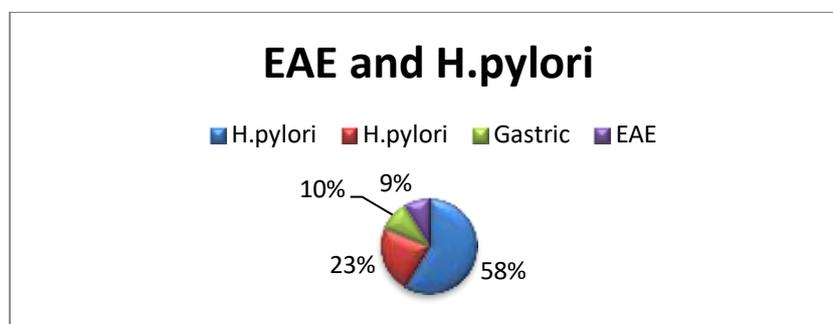
Results and statistical analysis

The relationships were revealed by the two-tailed Fisher's exact test and an odds ratio with (95 % $P \leq 0.001$) (SPSS statistic software 22.0 was used for data analysis.). This cross-sectional study included 137 students male and female Iraqi they had indications (mild to severe) symptoms of morning sickness at various at exam anxiety. They were then tested for *H. pylori* infection and gastric secretion was detected in students suffer from severe symptoms compare to students they suffer from mild symptoms. Infection with *H. pylori* was positively 87 student from 137 (63.5%) while the remain student (50) were negatively with mild symptoms.

Gastric Secretion Evaluation

Previously described methods for obtaining genomic DNA from gastric juice were found to be effective¹⁰. It was necessary to neutralize the acidity of 4 milliliters of aspirated gastric juice using 0.67 mol/L of Tris (pH 7.0). For 25 minutes, each sample was centrifuged at 5000 g. The pellets were re-suspended in 100 l of sterile distilled water after the supernatants were removed. One hundred μ l of lysis buffer (100 mmol/l; NaCl, 10 mmol/l; Tris-HCl (pH 7.5), 15 mmol/l EDTA, 0.2% sodium dodecyl sulfate, then 5 μ l of proteinase K -10 g/l were added). Incubation was carried out at 60°C for 20 h; this was followed by phenol-chloroform extraction and ethanol precipitation. The resulting pellet was allowable to dissolve in 25 μ l of buffer 10 mmol/l Tris-HCl (pH 7.5) and 0.1 mmol/l EDTA (pH 7.4) for 24 h at 37°C. Before PCR amplification, samples were kept at -8°C. A spectrophotometer (Beckman DU-600, USA) was used to measure absorbance at 280 nm and 265 nm in order to determine DNA content and purity^{11,12}.

	Symptoms	+H. pylori	-H. pylori	Gastrin secretions P≤0.001 for+Hpylori	Anxiety-Epinephrine Mean ±SE
Female-Students	Sever	17	5	0.30	0.67±0.01
	Moderate	20	12	0.24	0.54±0.06
	Mild	26	8	0.15	0.25±0.02
Male-Students	Sever	10	7	0.34	0.37±0.05
	Moderate	11	10	0.18	0.28±0.01
	Mild	4	8	0.07	0.09±0.03
N=137	Fever-gastritis	87-63%	50-28%	P≤0.001 n=87	For n=87



Discussion

H. pylori bacteria can cause problems with trace element absorption and metabolism, which can lead to increased morbidity, especially during pregnancy. The current study looked at students they had stomach distress might be Exam Anxiety (high epinephrine and severe nausea and vomiting morning sickness^{13,14}). An estimated 28. percent of people with EAE had H. pylori infection, which is similar to the prevalence rates of EAE and H. pylori infection found in Iraq in 2007 and 2006, both of which stood at 63.5 percent. The positive seroprevalence of H. pylori in was estimated to be 63.5% in Iran: Infection with H. pylori in women varies by geographical region, ranging from 7.9% to 94 percent¹⁵. It ranged from 24 percent to 61 percent, 7.5 percent to 42.9 percent, and 50 percent to 70 percent in Asian, European, and American women, accordingly; additionally, it is higher than 52 percent in African countries

A state of anxiety or fear is defined as stress. Anxiety is a state of mind marked by feelings of impending danger, tension, and distress, as well as avoidance or fleeing behaviors. Dangerous anxiety, chronic loads, life transformations, and challenges are all part of the human experience². Life would be a lot easier if our needs were constantly met. However, as we all know, there are a number of external and internal obstacles that block the fulfillment of our desires and complicate our attempts to reach our goals. Delays, shortages, failures, losses, limits, disagreements, and pressures affect us all. We are under a lot of pressure to change under such conditions. Examination anxiety among our college students^{2,15}

H pylori, which has a patchy and variable mucosal distribution, can be studied using stomach juice as a centralized source of events in the gastric environment. In developing countries, where H. pylori may live as a dynamic mix of quasi-species, this is especially important. However, because gastric juice is

representative of the actual microenvironment and overall degree of infection in the stomach, a single biopsy sample may not be able to detect *H. pylori*. Hydrolysis of stomach urea by *H. pylori* is possible because of its high urease activity, which is highly specific to the urease enzyme^{16,17,18}. This protects the organism from stomach acid's damaging effects, and the ammonia produced as a buffer¹⁵. By decreasing urease activity and decreasing the secretion of stomach acid, the proton pump inhibitor^{17,18}. When acid secretion is suppressed, *H. pylori* raises the pH of its local environment to alkaline values, making it difficult for it to survive in a culturable form^{19, 20}. Cytokines and cortisol appear to facilitate communication between these systems. It is commonly known that erythrocytes, neutrophils, and platelets rise in number, while lymphocytes, eosinophils, and monocytes decrease. The magnitude of stress-induced changes is considerably reduced in adrenalectomized rats. Stress-induced endocrine hormones are considered to influence leucocyte trafficking and cause redistribution of leucocytes between the blood and other immune compartments. During times of stress, sympathomimetic stimulation is used. Activation of the sympathetic nervous system could play a role. Lymphocytes and monocytes have receptors for several stress chemicals, including norepinephrine and epinephrine. As a result, tense situations arise². Studies have found a significant increase in hemoglobin and mean corpuscular volumes in stressed individuals. Surprisingly, a similar effect was recently observed in a large number of students following the stress caused by academic examinations. An increase in erythrocyte volume has been observed after short bursts of vigorous activity. As a result, students will be better able to cope with exam stress and perform better. Our college did a study that was entirely focused on second-year students. Another component contributing to these adjustments could be metabolism or neurological aspects, according to the theory that second-year students are more prone to stress. This revelation could be the result of a study involving other pharmacy students. A study of this nature is being considered.^{2,6}

Conclusion

Treatment with antimicrobials could have made a difference for these patients. Although the results of this study are promising, they need to be replicated in a larger sample size. Finally, a PCR test on gastric juice can rule out the possibility of anything else happening. *H. pylori* status can, however, be confirmed in individuals with exam anxiety alterations that are compatible with gastritis, but who are negative for *H. pylori*. Is overtired, or has his knowledge structured in a way that prevents speedy recall. Exams place a premium on students' ability to comprehend, organize, and recall knowledge. The student is expected to demonstrate his knowledge's depth and breadth. All of these can be influenced by the situation's stress. The fear of failure or poor performance can be crippling. It's typical to hear things like "I forgot," "I studied but didn't remember," and "I just got confused." All of this is attributable to the exam's stress on the student. Exams are currently the only means of judging pupils' knowledge in this competitive society. Things do not appear to be changing in the near future. In immune cells, implying a function for social support in preventing immunological deterioration during stressful times.

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