Detection Gastrin by PCR in Case Exam Anxiety (High Epinephrine -EAE) and (*Helicobacter Pylori*) in Pharmacy Students

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Abstract

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

Keywords: Helicobacter pylori • Exam anxiety • Epinephrine • Gastrin • Students • Exam

Introduction

At the beginning of 1982, it was discovered that *Helicobacter pylori (H. pylori*) infection was more widespread in developing countries than in developed countries. H. pylori are a gram-negative bacillus that colonizes the stomach and has a role in a variety of gastrointestinal diseases and disorders. It is the world's most frequent acute and chronic infection, causing peptic ulcers and gastric cancer in late adulthood [1]. H. pylori have been designated as a definite pathogen by the World Health Organization and the International Agency for Research on Cancer. At the beginning of 1982, it was discovered that H. pylori infection was more widespread in developing countries than in developed countries. *H. pylori* are a gram-negative bacillus that colonizes the stomach and causes stomach ulcers. Carcinogen Class I in 1994 [2]. Nausea and vomiting have been deemed routine signs and symptoms in students, especially in severe case, which represent very unpleasant stomach symptoms- morning sickness, increased temperature, burning sensation of the 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 dysplasia [4]. Chronic usage of proton pump inhibitors may increase the 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]. The pathophysiology of *H. pylori* infection and the subsequent clinical outcome are the consequence of a complex interaction between the host and the bacteria, which is impacted by the environment and modified by a number of unknown factors. *H. pylori* bind to the tissue and then release 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]. Despite the fact that H. pylori are non-invasive bacteria, it triggers a powerful inflammatory response [9].

Materials and Methods

The study enrolled a program 137 male and female students from pharmacy College at the second stage , firstly: the questionnaire form about the exam anxiety for 1 month, second we were 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 years-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 who suffer from severe symptoms compared to students they suffer from mild symptoms. Infection with *H. pylori* was positively 87student of 137 (63.5%) while the remain student (50) were negative with mild symptoms.

Gastric secretion evaluation

Extraction of genomic DNA from gastric juice was approved as formerly described [10]. A 4 ml of gastric juice aspirate was buffered to a neutral pH with 4 ml of Tris (0.67 mol/L, pH 7.0). Each sample existed then concerted by centrifugation at 5000 × g for 25 min. The supernatants were removed and the pellets were re-suspended in 100 µl of sterile distilled water. One hundred µl of lysis buffer (100 mmol/l; NaCl, 10 mmol/l; Tris-HCl (pH 7.5), 15 mmol/l EDTA, 0.2% sodium dodecyl sulfate, then5 µl 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 µl 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. Samples were stored at -8°C before PCR amplification was performed. DNA content and purity was determined by quantifying the absorbance at 280 nm and 265 nm using a spectrophotometer -Beckman DU-600, USA [11, 12].

Discussion

.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 experience Life would be a lot easier if our needs were constantly met. However, as we all know, several external and internal obstacles 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].

Stomach juice provides a centralized source of events throughout the entire gastric milieu, and it could be useful for researching *H pylori*, which has a patchy and variable mucosal distribution. This is especially important in developing nations, where *H. pylori* may live as a dynamic mix of quasi- species. A single biopsy sample may not be able to detect the presence of *H pylori*, but because gastric juice reflects the actual microenvironment and global degree of infection in the stomach, it may be able to overcome this limitation. *H. pylori* has a strong urease activity, and thanks to this highly specific activity of the urease enzyme, *H. pylori* can hydrolyze the urea in the stomach [16-18]. This shields the organism from the damaging effects of stomach acid, and the ammonia produced buffers the acid, protecting the organism [15]. The proton pump inhibitor decreases urease activity and reduces stomach acid secretion [17,18]. *H. pylori* in the presence of urea elevate the pH of its local surroundings to alkaline values when acid secretion is suppressed, and it is unlikely 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 a 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 arise. 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.

Conclusion

Antimicrobial therapy would have helped these patients. The findings of this study, however, need to be validated in a wider group of students. Finally, the use of the gastric juice PCR to rule out. It can, however, be utilized as a supplement to confirm *H pylori* status in individuals who have exam anxiety alterations compatible with *H pylori* gastritis but are *H. pylori* negative.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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