

Effect of lemon oil concentrate *Cymbopogon citratus* ERILIM[®] on the *Helicobacter pylori* bacteria: A Case Report

Abstract

The research is based on the effect of the lemon tea concentrate since the polyphenols of this are powerful antioxidants, studies have shown that they suppress free radicals in a more effective way than vitamins C or E; in some of them, specifically in *H. pylori*, which generally colonizes the human stomach as a single strain with stable characteristics. Authors mention that this colonization can be stable throughout life. This bacterium is related to chronic gastritis, and although *H. pylori* infection is still the main cause of duodenal and gastric ulcers, the prevalence of ulcers associated with *H. pylori* is decreasing, while that of related ulcers with non-steroidal anti-inflammatory drugs (NSAIDs) is increasing. Much of what has been published lately about *H. pylori* and has focused on its important changes in the pattern of the disease and in the potential value of eradication therapy.

Key words: *Helicobacter pylori*, effect, lemon tea, chronic gastritis, treatment.

Introduction

In Mexico, currently two of the most frequent health problems are chronic gastritis and chronic gastrointestinal reflux disease. It is believed that this is due to the average Mexican diet because we are very used to ingesting irritants. From citrus to sauces that directly irritate the gastric mucosa. But is the Mexican diet really the cause of these symptoms? Gastritis "is any inflammatory lesion that affects the gastric mucosa" ⁽¹⁾. Chronic gastritis consists of nonspecific inflammation of the gastric mucosa of progressive and long evolution, with a multiple etiology that is characterized by presenting chronic histological lesions. Its main location is in the antrum and in the gastric body. The main etiologic agent is *Helicobacter pylori* infection ⁽²⁾.

It is accepted that the prevalence increases in underdeveloped countries that have a poor health system and decreases in developed countries with a high level of health and socioeconomic status. In Mexico, health measures can be awful, which compromises the health of the population. According to statistics, gastritis affects 80% of Mexicans and is more susceptible in women than in men, it also occurs frequently between 20 and 54 years of age ⁽³⁾.

Helicobacter pylori is a common bacterium in underdeveloped countries such as Mexico. It is currently a major threat problem that affects all populations of all ages and of any gender; In Mexico, more than 90% of patients who present chronic gastritis are due to this causative agent. However, with the passage of time and without determining an exact diagnosis of chronic gastritis due to *H. pylori*, more serious complications can be reached, ranging from ulcers to gastric adenocarcinomas. The treatments that are had to fight the bacteria are not very effective because the medium where the bacteria lives is precisely the stomach; which has a highly acidic pH, which decreases the effectiveness of the antibiotic. With this research, we will evaluate that the lemon oil concentrate is an easily obtainable effective treatment against the bacteria that does not harm the stomach lining ⁽⁴⁾.

Helicobacter pylori is a curved, Gram negative, flagellated, non-invasive microaerophilic bacterium. It is highly adapted to its environment, so that it overcomes all the barriers of the gastric mucosa, penetrates the mucus, adheres to the gastric cells, evades the immune response and colonizes the mucosa. The virulence factors of this bacterium are the flagella that allows mobility and adhesion in the gastric mucosa. The urease that allows you to produce ammonium and neutralize gastric acids and other enzymes such as phospholipids and superoxide dismutase which are those that help it avoid the immune response and cause inflammation of the mucosa ⁽⁴⁾. The incidence of infection increases with the possibility of exposure and, therefore, with age. In Mexico It was detected ⁽⁴⁾, a seroprevalence of 70% for HP in 11605 blood samples of people of various ages (1 to 90 years of age). In this same series, at the age of one year, 20% of children were positive. In addition to this, there are several studies in developing countries that show that a significant percentage of children under two years of age are already infected. Acquired infection occurs during childhood, may remain asymptomatic or become symptomatic in adulthood, does not produce memory immunity and reinfection usually occurs. *H. pylori* is easily transmitted in the family environment, having found it in the dental bacterial plaque, the human stomach is considered a reservoir. Its transmission is discussed and there is talk of a transmission from person to person in developed countries, or through the use of water contaminated with feces, where it remains viable for many days ⁽⁵⁾.

The symptoms are from acute to chronic. At the beginning of the infection the disease can be asymptomatic or symptomatic, depending on the number of bacteria that are colonizing the gastric mucosa. The symptoms are gastritis, dyspepsia, gastroesophageal reflux and pain in the

epigastrium. However, these symptoms become chronic, progressive and of enormous evolution; the mucosa is injured so much that gastric ulcers, internal bleeding and even a gastric lymphoma associated with MALT can occur ^(6,7,8).

Gastric MALT lymphoma represents 5% of all gastric cancers and less than 50% of all gastric lymphomas, which makes it the most frequent gastrointestinal tract lymphoma. For its association with *Helicobacter pylori*. MALT lymphoma represents a fascinating model of the close pathogenic link between chronic inflammation and lymphoma development ⁽⁷⁾.

There are currently several drugs that fight *H. pylori*, however none of these eradicates 100%. On the contrary the bacterium becomes even more resistant to these. After a patient is diagnosed with *H. pylori* and a positive urease breath test is performed, a variety of drugs are prescribed in order to inhibit the acidity of gastric juices so that antibiotics can combat this bacterium. Therefore, Oxintric cell blockers are used, which are responsible for the production of HCl such as ranitidine and omeprazole. Several antibiotics that have been good to combat this bacillus such as tetracyclines, clarithromycin and metronidazole are then administered. The efficacy of the various therapeutic schemes available, both first and second line, included in this systematic review to define the optimal treatment of *H. pylori* infection vary significantly worldwide. However, actually there is no ideal therapeutic strategy to eradicate *H. pylori* infection in 100% of cases ⁽⁸⁾. The system of treatments that are had for this Gram-negative bacterium is not the best, so we will present a more successful treatment, accessible and without adverse effects.

H. pylori is responsible for 90% of cases of chronic gastritis and is related to the first cause of a gastric adenocarcinoma. This is an important issue for public health in Mexico as it is the duty of doctors to prevent, diagnose and give good treatment to eradicate this problem.



Figure 1. Lemon tea *Cymbopogon citratus*

At the University of Guadalajara, it was discovered that the lemon tea herb in its oil concentrate does combat *H. pylori* and also relieves symptoms as well as the treatments used for *H. pylori*. According to Jorge Antonio Álvarez Ousset "natural lemon tea extract is not an antacid, but an

aldehyde that eliminates the bacterium helicobacter pylori." ⁽⁹⁾. Thus, the doubt and the reason for this article arose, to evaluate from a case study the operation and effectiveness of the concentrated lemon tea oil.

Case Presentation

We interviewed a 38-year-old female patient who works as a secretary at the Health Institute of the Autonomous University of the State of Hidalgo. The result was the following:

The patient presented the classic symptoms of gastritis for a year, so she went to the doctor, who diagnosed her with chronic nervous gastritis. However, she mentions that the treatment she had been given was only proton pump blockers to decrease HCl production such as omeprazole, but she did not notice improvement and simply gastritis worsened. After a month the individual went to the gastroenterologist who diagnosed her with severe gastritis. but that was not the problem because after 1 month he continued with the problem which was exacerbated, so the specialist performed an endoscopy and observed ulcerations in the stomach mucosa, so he performed a test for suspicion of *H. pylori*. The test was positive urease.

Discussion

The doctor immediately prescribed antibiotics (clarithromycin) as well as the use of omeprazole to eliminate the bacteria. The patient says that the symptoms diminished but if she left the treatment pain would intensify again. After 3 months with the treatment another homeopathic doctor who offered him a treatment based on a lemon tea oil concentrate. She mentions that she took a single drop three times a day before each meal for 14 days, stopped the treatment for 7 days and again took lemon tea concentrate for another 14 days (Figure 2).

After a month of taking the oil, the symptoms disappeared and when she went to the doctor another urease test was performed, which turned out to be negative for *H. pylori*. She said that during the condition "I could not eat more than bread, I lost a lot of weight and could not even sleep because of the intense pain. I took lactobacillus-rich yogurts to lessen the pain. Until I took lemon tea oil, I started a normal life again.

Currently I can eat everything, but now I try to take care of myself, I no longer have fasts and I also don't eat anymore in the street because H. pylori bacteria can be found in contaminated food.



Figure 2. [The treatment]. Take one drop three times a day before each meal for 14 days, interrupt for 7 days and drink again for 14 days.

Conclusion

After conducting the interview and having knowledge about *H. Pylori* regarding its resistance to antibiotics, we can conclude that the effect of the lemon oil concentrate on the *Helicobacter pylori* bacteria is effective given that it completely eliminates it without bringing any secondary effect, therefore, the ideal treatment to eliminate the bacteria is the lemon tea concentrate.

COMPETING INTERESTS DISCLAIMER:

Authors have declared that no competing interests exist. The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

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