ORIGINAL ARTICLE

INFLUENCE OF SYSTEMATIC TAKING BLOCKERS OF H2-HISTAMINE RECEPTORS ON THE DEGREE OF SEMINATION OF GASTRIC MUCOSA WITH HELICOBACTER PYLORI INFECTION OF PATIENT WITH CHRONIC NON – ATROPHIC GASTRITIS

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ABSTRACT

The aim: To determine the effect of prolonged use of H_2-histamine receptor blockers on the degree of contamination of the gastric mucosa with HP infection in patients with chronic non-atrophic gastritis.

Materials and methods: 28 patients with chronic atrophic gastritis (the main group), who regularly took H2-histamine receptor blockers for 2 to 7 years, and 30 patients (control group), who never used them were comprehensively examined. Comprehensive examination included: step-by-step intragastric pH-metry, esophagogastroduodenoscopy, helicobacter infection test (HP) (helicobacter urease test and microscopic examination of stained smears), histological investigations of the gastric stump mucous, material for which was taken during endoscopy from 4 topographical zones: from the middle third of the gastric antrum and body of stomach on the big and small curvature.

Results: All the patients in 100% of cases have confirmed the existence of chronic non-atrophic gastritis in both active and inactive stages of varying degrees of severity. Helicobacter infection was detected in 100% of cases. A comparative analysis of the data on the average degree of infection of the gastric mucosa by HP infection in the same topographic zones in the patients of the main and control groups revealed a significant ($p < 0.05$) higher degree of seeding of the gastric mucosa in patients of the main group in all zones.

Conclusions: Monotherapy for chronic non-atrophic gastritis with blockers of H_2-histamine receptors leads to an increase in the degree of gastric mucosa semination with HP infection. This fact requires mandatory parallel use of antibacterial agents – colloidal bismuth subcitrate and antibiotics, with blockers of H_2-histamine receptors.

KEY WORDS: chronic non-atrophic gastritis, Helicobacter infection, blockers of H_2-histamine receptors

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INTRODUCTION

The discovery of Helicobacter pylori (HP) in the 1983 year by Australian scientists B. Marshall and J. R. Warren changed views on etiology of such diseases as chronic gastritis type B (chronic non-atrophic gastritis), peptic ulcer disease, stomach cancer and MALT-Lymphoma [1, 2, 3, 4, 5, 6]. Before this discovery, it was thought that peptic ulcer disease is formed as a result of damage to the gastric mucosa and duodenal ulcer acid-peptic factor that led to the creation of different groups of drugs that affect the function of parietal cell acid – M_1-cholinolitik, blockers of H_2-histamine receptors and Proton pump inhibitors (PPIs). And although the Maastricht consensus all convocations (last 5-th the Maastricht consensus was adopted in the year 2015 (Florence) for the treatment of chronic Helicobacter pylori infection it is recommended to use quadratherapy, which, in addition to PPI and 2 antibiotics, includes preparation of the bismuth colloidal subcitrate [7, 8] widespread use will still remain the blockers of H_2-histamine receptors [9, 10, 11, 12, 13]. In the available for us literature there's no information on the impact of the drugs on the degree of gastric mucosa semination with HP infection that led to conduction of our research.

THE AIM

To determine the effect of prolonged use of H_2-histamine receptor blockers on the degree of contamination of the gastric mucosa with HP infection in patients with chronic non-atrophic gastritis.

MATERIALS AND METHODS

On the basis of the clinical division of the basic research laboratory on issues related to chronic Helicobacter pylori infection of Petro Mohyla Black Sea National University was comprehensively surveyed 28 patients with chronic non atrophic gastritis (main group), who regularly took the blockers of H_2 – histamine receptors within from 2 to 7 years, and 30 patients (control group) who had never taken them. The age of patients ranged from 25 to 58-years (the medium age was 33.2 ± 1.23); males were 37 (53.5%), females -21 (46.5%).

The study was conducted in accordance with the basic bioethical provisions of the Helsinki Declaration of the World Medical Association on the ethical principles of scientific 549 medical research involving human (2013) and the order of the Ministry of Health of Ukraine No.

Table I. The acidity level in the patients of the main and control groups

Level of acidity	Main group (n=28)		Control group (n=30)	
	Quantity of patients	%	Quantity of patients	%
Hyperacidity expressed	1	3,6	1	3,3
Hyperacidity moderate	3	10,7	2	6,7
Normacidity	10	35,7	12	40
Hypoacidity moderate	7	25	8	26,7
Hypoacidity expressed	7	25	7	23,3
Anacidity	0	0	0	0

Note: n-the number of studies

Table II. Degree of semination of gastric mucosa with HP infection on topographical zones of patients with chronic non-atrophic gastritis of the main and control groups

Groups	Degree of semination of gastric mucosa with HP infection on topographical zones of stomach (+) / (M ± м)	
	Antrum	Corpus of stomach
Main group (n = 28)	a) 2,95 ± 0,28; b) 2,98 ± 0,28.	a) 2,91 ± 0,28; b) 2,98 ± 0,28.
Control group (n = 30)	a) 2,05 ± 0,25; b) 1,97 ± 0,25.	a) 2,13 ± 0,25; b) 2,21 ± 0,25.

Note: n-the number of studies, a)-large curvature, b)-small curvature.

690 dated September 23, 2009, which was confirmed by the findings of the meeting of the Ethical Commission of Petro Mohyla Black Sea National University, Nikolaev No. 12 dated December 11, 2019. A written consent was obtained from the patients for the study.

Primary comprehensive survey included: step-by-step intragastric pH-metry based on methodology by Chernobrovyi V.N esophagogastroduodenoscopy (EGDS) by generally accepted method, double HP testing: test for ureaz activity and microscoping stained by Giemsa smears, material for which was taken during endoscopy from 4 topographical zones: from the middle third of the gastric antrum and body of stomach on the big and small curvature with our created methodology and also histological studies of the gastric mucosa, the material for which is taken from the same zone, using a generally accepted method taking into account recent classification [14, 15].

Primary sequence survey: first patients conducted pH-metry and then EGDS with biopsy material for testing in HP and histological studies of the stomach mucosa. The study was conducted in the morning on an empty stomach, in 12-14 hours after the last meal. The data obtained were processed statistically using Student t-test with the computation of averages (m) and perhaps the likelihood of deviations (m). The changes were considered to be statistically significant at p 0.05 <. Statistical calculations were performed using Excel tables for Microsoft Office.

RESULTS AND DISCUSSION

Data obtained during the conduct of pH-metering are shown in table I.

While conducting esophagogastroduodenoscopy active ulcerative process was not identified as in the stomach so as in duodenum, but 5 (8.6%) patients had manifestations coming through in the past ulcers duodenal bulb as scar deformity of varying degrees of severity. When analyzing data of histological investigations all the patients in 100% of cases have confirmed the existence of chronic non-atrophic gastritis in both active and inactive stages of varying degrees of severity.

When testing on HP Helicobacter infection was detected in 100% of cases. Data on the extent of the gastric mucosa for semination of HP infection on topographical zones of the stomach of patients with chronic non-atrophic gastritis are shown in table II.

Comparative analysis of data on the medium degree of semination with HP infection on gastric mucosa on similar topographical areas main group patients and control groups was detected significantly ($p < 0.05$) greater degree of semination of gastric mucosa of patients of basic group in all areas.

These results are understandable from the viewpoint of influence H_2 -histamine receptors on parietal cell (PC) and patterns of interactions of macroorganism – organism of a human being and microorganism.

As it is well known, there are three receptors on the PC through which goes the regulation developing of hydrochloric acid: histamine, gastrin, and acetylcholine. In contrast to the PPI, which inhibit the production of hydrochloric acid by blocking the H^+/K^+-ATPhase and without affecting the PC, blockers of H_2-histamine receptors affect only on the histamine receptors, which leads to a decrease in the formulation of hydrochloric acid at 70% in contrast to PPI, which block the production of nearly 100% [16]. Interaction between human body and HP infection is based on the impact of the protective properties of the organism on HP and means to combat bacteria to these protective properties. Protective factors of the human body is the effect of immune system and hydrochloric acid on HP infection.

However, HP has its own protective mechanisms: the bacterium produces a large number of factors of antioxidant system-superoxide dismutase and catalase, which neutralize the antibacterial activity of neutrophils and hydrochloric acid is neutralizes due to ammonia, which is produced from food under the influence of urea enzyme urease produced by HP [1]. Combating the factors of protection takes about 2/3 of energy reserves bacteria, while maintaining vital functions including reproduction-1/3 [1]. With incomplete reducing production of hydrochloric acid under the influence of H_2-histamine receptors energy costs to combat it is declining, and the bacterium gets more energy for reproduction, that is confirmed by the results of our research.

CONCLUSIONS

1. Monotherapy for chronic non-atrophic gastritis with blockers of H_2-histamine receptors leads to an increase in the degree of gastric mucosa semination with HP infection.
2. This fact requires mandatory parallel use of antibacterial agents – colloidal bismuth subcitrate and antibiotics, with blockers of H_2-histamine receptors.

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Conflict of interest:
The Author declare no conflict of interest.

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