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Prevention of the Oral Diseases in the Immediate Relatives of the Patients with the High Degree of the Helicobacter Pylori Content in the Stomach.

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ABSTRACT

The view of the problem of prevention of the oral diseases in the immediate relatives of the patient with the high Helicobacter pylori in the stomach is presented. There was performed the complete dental examination and treatment of 108 persons, among which there were 80 persons with the Helicobacter pylori associated oral diseases and 28 patients with the oral diseases without the related general somatic pathology being diagnosed in the absence of Helicobacter pylori in the stomach. Also, the 34 immediate relatives of the patients with the high Helicobacter pylori content in the stomach have been examined on the single-time basis. On the basis of the data obtained there has been developed the schedule of the exogenous and endogenous prevention of re-infection of the oral and stomach mucosa by Helicobacter pylori. The extremely important role of the professional and antimicrobial hygiene in the eradication of the oral cavity as the secondary reservoir of the Helicobacter pylori infection has been proved that promotes to the improvement of the tissue immunity and restoration of the oral acid-base balance.

Keywords: Oral mucosa diseases, eradication of Helicobacter pylori, ethiopathogenic treatment, "family" reservoir of infection, professional oral hygiene, oral tissue immunity.

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INTRODUCTION

It is known that the oral cavity is the initial part of the gastro-intestinal tract [1, 2]. The GIT-diseases are often accompanied by the changes in the oral cavity. The gastro-intestinal tract is the largest reservoir of microorganisms [3]. By now it has been proved that the microorganism *Helicobacter pylori* (*H. pylori*) is an opportunistic pathogenic one and is being a part of the normal mucous microflora of the stomach and oral mucosa [4]. The number of the *H. pylori* carriers in Russia reaches 70 % of the population and the vast majority of them do not suffer from any GIT-diseases. At the same time only 12-15 % of people infected with *H. pylori* [5] suffer from the gastroduodenal ulcer. The important role of this microorganism in the development of the MALT-lymphoma and gastric adenocarcinoma has been acknowledged [6, 7].

The secondary reservoir of *H. pylori* is the oral cavity [8]. There was noted the correlation between the presence of *H. pylori* in the oral cavity and its poor hygienic state [9]. There are only single publications about the eradication of the oral cavity as the secondary reservoir of *H. pylori*.

Infecting with Helicobacteriosis takes place from one person to another via contact-home, oral-oral and fecal-oral, treatment-induced way – through endoscopes and tubes [10]. *H. pylori* is most frequently passed inside of a family. The transfer factors may include different items contaminated with saliva, personal hygiene products. Most frequently the spouses infect each other which confirms the assumption by J.R. Warren, B.J. Marshall made in 1893 as to transfer of *H. pylori* through kisses. The parents also pass *H. pylori* to their children through kisses, by using the same tableware, hygiene products, bed cloths, dummy sucking, etc. As a rule, all the family members are the carriers of the same *H. pylori* strains [11-13].

We believe that eradication may be efficient only in the case of the simultaneous treatment of the entire family including children for liquidation of the “family” reservoir of *H. pylori* even if the course of the disease is asymptomatic. The individual therapy is not correct because of the high contagiousness of the disease and the population tends to demonstrate the low level of the sanitary-hygienic education.

However, now eradication is not indicated for: pregnant and nursing women, children smaller than 5 years, patients with a severe somatic pathology, polyvalent allergy to antibiotics, co-morbidity of the hepatobiliary system [14-16].

Objectives

Liquidation of the “family reservoir”, prevention of re-infection of the oral and stomach mucosa with *H. pylori*.

Tasks

- To analyze the indicators of the oral local immunity: sIgA, IgA, IgG, IgM, Liz activity level, coefficient of the balance of the local immunity factors in the patients infected with *Helicobacter pylori* before and after eradication.
- To investigate the impact of the professional oral hygiene on the efficacy of the combined individualized ethiopathogenic treatment and (or) prevention of the *H. pylori*-associated oral mucosa diseases. To specify the place and role of the antimicrobial and professional oral hygiene in this category of patients.
- To develop and implement on the basis of the microbiological and immunological findings obtained the schedule for the combined individualized ethiopathogenic treatment and (or) prevention of the *H. pylori*-associated oral mucosa diseases.

MATERIAL AND METHODS

In the course of the study performance there was performed the complete dental examination of 108 persons at the age from 18 to 55 years, 80 persons (35 men and 45 women) with the *Helicobacter pylori* associated oral diseases and 28 patients within the same age range (18-55 years) (10 men and 18 women) with the oral diseases without the related general somatic pathology being diagnosed in the absence of *Helicobacter pylori* in the stomach.

Depending on the H. pylori content in the stomach mucosa and presence of the oral mucosa diseases the patients were divided into groups:

- 1st group – 27 persons with the diagnosed H. pylori-associated oral mucosa diseases. The presence of H. pylori in the stomach was detected with the use of the histological method, urea breath testing (Helic-scan). The stomach mucosa bacteria load – low (+), up to 20 microbe bodies per HPF, at the microscope magnification x 630 (L. I. Aruin criteria, 1995);
- 2d group – 29 persons with the diagnosed H. pylori-associated oral mucosa diseases. The presence of H. pylori in the stomach was detected with the use of the histological method, urea breath testing (Helic-scan). The stomach mucosa bacteria load – medium (++), up to 50 microbe bodies per HPF, at the microscope magnification x 630 (L. I. Aruin criteria, 1995);
- 3d group - 24 persons with the diagnosed H. pylori-associated oral mucosa diseases. The presence of H. pylori in the stomach was detected with the use of the histological method, urea breath testing (Helic-scan). The stomach mucosa bacteria load – high (+++), over 50 50 microbe bodies per HPF, at the microscope magnification x 630 (L. I. Aruin criteria, 1995);

The control group (4th group of the study) consisted of 28 persons with the oral mucosa diseases without the related general somatic pathology being diagnosed. The absence of H. pylori in the stomach was confirmed by the urea breath testing (Helic-scan).

For liquidation of the “family” reservoir and prevention of re-infection of the oral and stomach mucosa with H. pylori we performed the examination of the oral cavity and single-time examination of the immediate relatives of the patients of the group 3 with the use of the urea breath testing (Helic-scan) for the presence of H. pylori. Totally 34 persons have been examined, at the age from 18 to 55 years, among them 12 men, 22 women. The presence of H. pylori was diagnosed in 13 persons, among which 7 men, 5 women.

The urea breath testing from among the non-invasive methods of diagnosis of H. pylori in the stomach was performed in the patients with the use of the hybrid unit HELIC-scan equipped with the electro sensor detector (CCD-sensor), with the use of the test system HELIC with the breath analyzer. The examination involved all the patients, was performed during the morning hours, fasting, three times: before the treatment, 1 month after the treatment, 6 months after the treatment.

The level of the oral cavity hygiene was analyzed with the use of the simplified oral hygiene index OHI-S (J.C. Green, J.R. Vermillion, 1964). For estimation of the state of periodontal tissues the papillary-marginal-alveolar (PMA) index was used that was modified by C. Parma in 1960, the intensity of the gum bleeding was estimated with the use of the bleeding index (H. Kotschke, 1975) as modified by L. M. Lukinykh, N. V. Tiunova (2008). For the purposes of recording of the quantitative changes of the tongue fur we used the index of K. Kojima et al. (1985) taking into account the thickness of the plaque and the area covered by plaque estimated visually in the oral cavity.

Estimation of acidity of the mixed saliva was performed twice: before the treatment and right upon completion of the schedule assigned, pH was measured with the use of potentiometric method (the portable pH-meter Marc-901).

Saliva was collected for estimation of the oral local immunity, the quantity of the serum immunoglobulins A, G, M (IgA, IgG, IgM), secretory immunoglobulin A (sIgA), the lysozyme activity in the mixed saliva (Liz) was measured along with the calculation of the coefficient of balance of the local immunity factors in patients before and after the treatment according to the selected schedules.

All the relatives of the patients of the 3 group with high H. pylori stomach load underwent a series of preventive measures including:

Exogenous prophylaxis

- Professional hygiene of the oral cavity and overdenture prostheses, twice a year.

- Control of the quality of the antimicrobial personal hygiene of the oral cavity, tongue, over denture prostheses. Upon detection of defects in the tooth brushing process, growth of the dental caries, gum bleeding the correction of the oral hygiene, professional hygiene and complete oral cavity sanitation was performed.

Endogenous prophylaxis

- Immunomodulator Derinat, 0,25 % solution, drop into each naris and oral cavity per 2-3 drops, 2-3 times a day during 3-4 weeks.
- Immunomodulator Imudon, according to the schedule: 5 tablets per a day, 8 days, for the treatment schedule (only upon completion of administration of the Immunomodulator Derinat).
- Bifiform, per 2 capsules, twice a day, 2 weeks, then per 1 capsule twice a day, 2 weeks.

Findings of the study

As of the date of examination of the relatives of the 3 group patients (with high *H. pylori* load of the stomach) 24 persons appeared to be healthy. In 3 persons the benign migratory glossitis was diagnosed, in 2 persons – the recurrent ulcerative stomatitis of the minor severity level at the epithelialization stage, in 3 persons – the typiform clavate papilla hyperplasia, in 1 person – the typiform oral lichen planus, in 1 person – the dry mouth. Besides, 4 persons noted that on the oral mucosa from time to time the aphthae appear in the amount of 1-2, 2-3 exacerbations per year. In 26 persons we noted the presence of the parodontium diseases: in 3 persons – chronic generalized minor and severe periodontic diseases, in 3 persons – chronic generalized catarrhal gingivitis of minor severity, in 19 persons – chronic generalized catarrhal gingivitis of moderate severity, in 1 person – the severe chronic generalized catarrhal gingivitis.

After the exogenous and endogenous prophylaxis performed all the patients noted the improvement of the condition and the quality of life consisting in the following:

- All the patients noted the reduction in the plaque accumulation, appearance of the fresh breath;
- 75 % of the patients paid attention to the reduction of the gum bleeding and tooth loosening;
- 5 % of the patients pointed at the hypersalivation;
- 10 % of the patients noted the disappearance of aphthae on the 5-6 day after the disease onset, reduction of the recurrence rate to 8-12 months while in the absence of any remedial actions or self-treatment aphthae repaired on the 7-8 day after the disease onset and the recurrence rate made 1 time per 4-6 months;
- 10 % of the patients felt reduction of burning and tongue pin sensation on the 2-3 day after the measured taken by benign migratory glossitis.

CONCLUSIONS

Thus, the relatives of the patients in which *H. pylori* was diagnosed require examination even if they are the asymptomatic carriers and administration of preventive actions for liquidation of the “family” reservoir of infection. The extremely important role of the professional and antimicrobial hygiene in the eradication of the oral cavity as the secondary reservoir of the *Helicobacter pylori* infection has been proved that promotes to the improvement of the tissue immunity and restoration of the oral acid-base balance.

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