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CLINICAL AND LABORATORY ASSESSMENT OF THE EFFICIENCY OF USING A NEW HYGIENIC ACTION IN THE TREATMENT OF CHRONIC GENERALIZED PARODONTITIS IN PATIENTS WITH HYPERACYDIN GASTRITIS

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Abstract

At present, diseases of mucous membrane of the oral cavity (MMOC), periodontal disease remain an unresolved problem of dentistry, due to the multifactorial nature of their occurrence.

The aim of the work is to increase the effectiveness of treatment of periodontal diseases, the mucous membrane of the oral cavity against a background of gastritis with an increased acid-forming function by applying pathogenetically grounded local therapy.

Local application of a new apigel based on propolis and biologically active substances in the complex treatment of patients with chronic generalized periodontitis of the first degree against a background of hyperacid gastritis has a beneficial effect on the clinical symptoms of inflammation of the oral mucosa and periodontium. In comparison with patients in whom anti-inflammatory local therapy was performed using the traditional method with local use of dental gel based on chamomile flowers, patients whose treatment regimen included local apigel use noted improvement in oral dental status 5-7 days faster. The proposed method quickly removed inflammation, bleeding gums that correlated with the improvement of the hygienic state of the oral cavity. The results of the clinical and laboratory evaluation of the

effectiveness of the use of the newly developed anti-inflammatory hygienic remedy for the treatment of periodontal disease in the context of heli bacterium in patients with hyperacid gastritis revealed a rapid normalization of indices of nonspecific and specific protection in the oral liquid than with conventional therapy. Under the influence of the developed local method of treatment for inflammatory diseases of MMOC and periodontal disease in patients with hyperacid gastritis, in particular, in tobacco-producing, optimal conditions are created for the elimination of violations of the immunological status of the oral cavity and the restoration of the structural and functional state of the periodontal and mucous membranes. The authors came to the conclusion that the local application of the proposed treatment method reduces the period of restoration of the structural and functional integrity of MMOC, improves the hygienic state of the cavity, promotes the rapid normalization of indices of nonspecific and specific protection in the oral fluid, preventing the development of inflammatory complications in tobacco-dependent, which increases the effectiveness of treatment and quality. the life of patients with conjunctival diseases of the digestive canal with an increased acid-forming function.

Key words: periodontitis, index estimation of periodontal tissues, specific and non-specific oral care, hyperacid gastritis, apigel.

Diseases of the oral mucosa (MMOC), periodontal disease occupy a leading place in the structure of dental diseases, to this day remain unresolved problem of dentistry, which is associated with the multifactorial origin of them.

In a significant number of these diseases occur as concomitant with damage to other organs and systems, in particular, the gastrointestinal tract (GIT). At the same time attention to the study of the effectiveness of treatment and prevention of diseases MMOC, periodontia from the point of their connection is not enough attention. Often, inflammatory and dystrophic lesions of MMOC s of periodontal disease occur when lesions of the gastrointestinal tract, but the mechanisms of their development against the background of this pathology have not been studied sufficiently [1].

The low efficacy of traditional therapy for MMOC and periodontal disease induces the search for new means and methods of their treatment. Taking into account the pathogenesis of inflammatory diseases of MMOC, periodontal disease, in the presence of gastrointestinal tract pathology, prophylaxis and therapy should be aimed at the restoration of impaired homeostasis of the oral cavity, the removal of local factors that initiate metabolic and immunological shifts in the oral fluid. Therefore, the development and study of new means of

local therapy of MMOC lesions that possess anti-inflammatory, antibacterial, anti-edema, pain-relieving, hemostatic, wound healing properties, which will allow them to be used in cases of connective pathology, GIT and periodontal diseases, MMOC, is an actual problem of modern dentistry.

The purpose of the study is to increase the effectiveness of treatment of periodontal diseases, MMOCs against gastritis with an increased acid forming function by applying pathogenetically substantiated local therapy.

Materials and methods of research

In the process of observation, chronic generalized periodontitis of 1 degree (HGP) was diagnosed in 30 patients without somatic diseases, in 52 patients chronic generalized periodontitis of 1 degree against a background of gastritis with an increased acid-forming function was diagnosed. The control includes 20 somatic and dental-healthy patients without bad habits, representative of age and sex. All studies were compared in 3 groups: 1 - control, which includes healthy people with a salivated oral cavity without inflammatory processes; 2 - the main one, which included 18 patients with first-stage HGP without concomitant somatic pathology and 38 patients with hyperacid gastritis, which included along with the generally accepted recommendations for additional local treatment using the newly created apigig Apisan on the basis of api-products and biologically active substances from Anti-inflammatory, antioxidant, antimicrobial effects [2], 3rd group of comparison, which included 12 patients with HGP 1 degree without somatic pathology and 22 patients with definite hyperacid gastritis and HGP 1 degree, receiving traditional therapy that included topical dental gel with extracts of chamomile flowers. Diagnosis of hyperacidic, gastritis was treated by gastroenterologist on the basis of fibrogastroduodenoscopy, detection of helicobacteriosis in the stomach and identification of *Helicobacter pylori* in the oral cavity by PCR.

All patients with periodontal disease and hyperacid gastritis in 2 and 3 groups were divided into 2 subgroups: tobacco-dependent (29 people), and non-smokers (26 people). The course of treatment was 7-14 days. The Apisan gel was applied locally in the form of applications on the gum or in cotton turundans in periodontal pockets with an exposure of 10-15 minutes, for a further 7-10 days, daily (Permission for use according to the purpose of "Conclusion of the State Sanitary and Epidemiological Expertise of the State Committee for Consumer Goods of Ukraine No. 602 -123-20-1 / 28/86 of 11.09.2017 »). The effectiveness of therapeutic methods was evaluated according to clinical, laboratory and immunological research methods.

The complex dental examination of patients consisted of analysis of complaints, history collection, examination, sensing, percussion, palpation, determination of the state of MMOC and periodontal tissues. During the stomatological examination of the patients the condition of the oral cavity was determined: the presence of dry mouth, bad breath, pain in the region of the tongue, disturbance of taste. At the examination of the oral cavity, attention was drawn to the color, contours, gum densities, the state of interdental papillae, the presence of over- and pineal dental deposits, the depth of periodontal pockets, swelling, hyperemia of MMOC. Hygienic condition of the oral cavity defined by an index of oral hygiene (OHI- S) by J. . Green, J. R. which allows you to estimate the amount of plaque and dental plaque on the surfaces of the teeth. To assess the state of gum tissues and the effectiveness of treatment, the papillary-marginal-alveolar index (PMA) [4] was used; the process of inflammation and degradation of periodontal tissues was judged according to the periodontal index of Pacce la (Pi) [5], the degree of bleeding of the gums was determined by the index of bleeding (SBI) by H. .

The pH meter of the oral fluid was performed using a portable pH meter H1 8314 (NNA, Germany) with a special electrode for measuring pH in small volumes of fluid [7].

A nonspecific factor in the protection of the oral liquid - lysozyme, studied by modified VI method Stogniya et al.

The concentration of immunoglobulins (Ig G, IgA, Ig M) determined by the simple method of radial diffusion in agar by G. using monospecific standard anti-rotors against the studied classes of immunoglobulins [9].

The processing and analysis of the data was performed using statistical methods based on modern computer software using standard application packages: Microsoft Excel 2011 and Statistica for Windows 7.0.

Statistical processing of the material was carried out by methods of variation statistics with the calculation of a standard error of the mean value. In assessing the degree of probability of differences in mean data, Student's t criterion was used; the difference was considered significant at $p \leq 0.05$.

Results and discussion

A comprehensive examination of patients including index evaluation of dental status and express diagnosis of helicobacteriosis using the urease respiratory test for the detection of systemic infection and the determination of *Helicobacter pylori* in the oral cavity by PCR method showed that the vast majority of patients with periodontal lesions in the background of hyperacid gastritis were infected with *Helicobacter pylori* (89.6%). Analysis of

concomitant somatic pathology with helicobacteriosis has determined the tendency for the expansion of negative manifestations that were reflected in increasing the detection of more severe dental symptoms in patients such as bleeding and ulcer, gum edema, erythematous gum disease, hyperemia of the alveolar clear mucous membrane, in comparison with Hp- non-infected patients. The obtained results of research on aspects of the frequency of Hp infection detection in dental patients allowed to distinguish them for studying the majority of analyzed factors.

Particularly important to us was the analysis of the dynamics of clinical efficacy by index estimation of oral hygiene and inflammation of periodontal tissues after complex therapy of periodontitis in patients who used local treatment with a newly created hygienic remedy in comparison with the local use of a traditional antibacterial drug.

The data of clinical examinations of patients with periodontal inflammatory diseases that arose against a background of hyperacid gastritis before treatment showed a deterioration of the hygienic state of the oral cavity, an increase in indexes of the state of periodontal tissues. All patients had bleeding gums in the probe test, in the periodontium, an inflammatory process was confirmed, confirmed by changes in periodontal indices. After a comprehensive treatment involving local anti-inflammatory therapy, some positive changes in clinical symptomatology were more pronounced in the main group of patients. Patients noted improvements in gum status, ceased to complain about bleeding when cleaning teeth. In the patients of the main group after the local application of the apigig, the clinical indices of OHI-S, PMA, and SBI decreased by 78.1%, 51.8% and 40% respectively ($p < 0,05$), reaching the values of healthy periodontal disease. Six months after treatment, the clinical indexes remained at the same level (Table 1).

During the study of patients in the comparator group, after the rate of local treatment, the decline of the OHI- S , PMA , SBI indices was found on average by 75.5%, 44.8%, and 22.8%, respectively, in relation to the actual values, but they did not reach the indicators the main group (Table 2).

In the more remote period after treatment in patients of this group (after 6 months) there was a tendency to increase the indexes, in 3% of cases there was an exacerbation of inflammation in the periodontal disease.

Table 1

Changes in the stomatological status of patients with first-degree HGP against hyperacidic gastritis after local therapy using a new apigel, $M \pm m$

Indexes	Before treatment	After the treatment		
		In 2 weeks	In 1 month	After 6 months
OHI- S, scores p p ₁	1,96±0,45	0,43±0,20 <0,05 <0,05 >0,05 ≤0,05	0,36±0,20 <0,05 <0,05 >0,05 ≤0,05	0,50±0,22 <0,05 <0,05 >0,05 ≤0,05
PMA, % p p ₁	52,2±4,84	25,2±2,24 <0,05 <0,05 >0,05 ≤0,05	26,10±2,27 <0,05 <0,05	26,40±2,42 <0,05 <0,05 >0,05 ≤0,05
Pi scores p p ₁	2,66±0,54	1,98±0,58 >0,05 ≤0,05	2,34±0,60 >0,05 ≤0,05	2,32±0,73 >0,05 ≤0,05
PBI, points p p ₁	2,30±0,42	1,40±0,42 >0,05 ≤0,05	1,50±0,48 >0,05 ≤0,05	1,56±0,54 >0,05 ≤0,05
pH	6,79±0,13	6,98±0,14	7,04±0,18	7,08±0,20

Notes: 1. p - probability of difference with respect to the indicator before treatment;
2. p₁ - probability differences relative performance obtained by applying the newly created toiletries.

Table 2

Changes in the stomatological status of patients with first-stage HGP against hyperacidic gastritis after traditional local therapy, $M \pm m$

Indexes	Before treatment	After the treatment		
		In 2 weeks	In 1 month	After 6 months
OHI- S ,scores p	2,04±0,52	0,48±0,24 <0,05 <0,05	0,56±0,16 <0,05 <0,05	0,62±0,21 <0,05 <0,05
P M A, % p	55,04±4,80	30,30±3,14 <0,05 <0,05	31,92±2,41 <0,05 <0,05	33,40±2,48 <0,05 <0,05
Pi scores p	2,64±0,82	2,04±0,62 >0,05 ≤0,05	2,32±0,58 >0,05 ≤0,05	2,56±0,64 >0,05 ≤0,05
SBI, points p	2,26±0,54	1,48±0,28 >0,05 ≤0,05	1,52±0,54 >0,05 ≤0,05	1,62±0,48 >0,05 ≤0,05
pH	6,75±0,20	6,84±0,20	6,95±0,19	6,89±0,20

Notes: 1. p - probability of difference with respect to the indicator before treatment

Conducting pH-metritis of the oral fluid revealed a shift in the pH to acidosis in 83.8% of patients with concomitant hyperacid gastritis and determined the probable differences in

the level of pH between the main group and the comparison group. When applying the newly developed hygiene product, the oral pH values in patients were displaced towards neutrality faster than with traditional therapy. The average level of oral fluoride after treatment in the main group was (6.98 ± 0.14) at (6.84 ± 0.20) in patients in the comparison group.

Thus, the local use of a new hygiene remedy improved the state of oral hygiene and periodontal tissues in patients with HGP 1 degree against a giperatsidnogo gastritis. The obtained results indicate a decrease in inflammation in the tissues of the periodontal disease, stabilization of the destructive process characterized by a stable clinical remission. A comparative analysis of the dental status of the patients in the main group and the comparison group, both after treatment and in the long term of observation, determined the more positive dynamics of the clinical status of the patients in the main group receiving local apisage therapy with Apisan than the patients who used the traditional therapy. Nonspecific oral defense was studied with the content of lysozyme having local and immunomodulating effects [10], specific protection - by the level of immunoglobulins A, G, M, which reflect the violation of the immune system of the immune system [9, 11]. The assessment of the status of local oral cavity immunity in patients with HGP 1 degree in hyperacid gastritis revealed differences in oral bioequivalence indexes compared to those in the control group and those with dental pathology without concomitant diseases. Lysozyme activity in patients with no comorbidities HGP was less than 2.2 times the level of antibodies, the opposite was more: IgG - 1.5 times, IgA - 1.4 times, IgM - 1.7 times compared to the performance of the control group. The obtained results indicate an impairment of immunological protection in the oral liquid of patients with HGP, which may be the cause of maintaining the local inflammatory process. The presence of concomitant pathology of the gastrointestinal tract (gastritis with an increased acid-forming function) in patients with HGP 1 degree was reflected in indices of nonspecific and specific protection in the oral fluid. The activity of lysozyme in the oral liquid in these patients was 2.45 times lower than in the control group, and the content of immunoglobulins was increased: IgG - 1.6 times, IgA - 1.3 times, IgM - 1.7 times, respectively. Obviously, the decrease in the activity of lysozyme in the oral liquid of patients is associated with its active participation in processes that reduce the activity of inflammation in the MMOC, and increase the level of immunoglobulins - with the amplification of their products and arterial hyperemia of MMOC as a result of the development of the inflammatory process [10, 11].

The analysis of immunological parameters in the patients under study, divided into 2 subgroups: with the habit of tobacco smoking and non-smoking, allowed to determine the

level of specific and non-specific protection in the oral liquid during inflammatory diseases of the periodontal on the background of giperatsidnogo gastritis under the influence of the risk factor - Tobacco The activity of lysozyme in smokers was significantly lower than in patients with concomitant tobacco-free pathology and decreased by 2.6 times compared with the control group was smokers 1,64 times larger than in the control group, while it was likely to exceed the level in non-smokers. The IgA level in smoker patients was higher than control in 1.45 times and was significantly different from that of patients with HGP with hyperacid gastritis without this harmful habit. In tobacco-dependent patients with HGP in the background of pathology, the stomach increased by 1.7 times compared with control. That is, tobacco-cooking has contributed to the deterioration of specific and non-specific protection of oral fluid. This can be either through direct influence Mr. and periodontal tissue and oral mucosa and indirectly - reducing resistance of the organism as a whole and the oral cavity, in particular.

The revealed changes indicate that in patients with first-degree HGP without a harmful habit with gastritis with an increased acid-forming function, the state of immunological protection in the oral liquid was better, which is associated with a lower degree of damage to MMOC and periodontal disease.

An increase in the content of immunoglobulins of class A and G, which are synthesized in the lymphoid tissue and are involved in maintaining the immunological oral homeostasis, is considered in the treatment of HGP as an appropriate response to the inflammatory and dystrophic process.

The influence of the traditional and proposed local treatment method on the indices of local immunity in the oral cavity is presented in tabl. 4

After the use of local therapy in patients with first-degree HGP with hyperacid gastritis, oral protective measures have changed in the better: the activity of lysozyme increased 2.26 times ($p < 0.05$) in patients in the main group compared with the rates prior to treatment, then as in the comparison group - 2 times. The level of immunoglobulins in the oral liquid with the use of the newly created drug decreased: IgG - 1.7 times, IgA - 1,3 times, IgM in 1,7 times, whereas after traditional therapy, compared with the data in patients before treatment, immunoglobulins were determined accordingly : IgG - 1.6 times, IgA - 1.2 times, IgM is 1.6 times lower ($p < 0.05$).

Table 3

Effect of local treatment on indicators of nonspecific and specific oral fluid protection in patients with HGP with conjunctival hyperacid gastritis, $M \pm m$

Indexes	Checking group n = 20	Groups of patients with HGP					
		No concomitant pathology			With hyperacid gastritis		
		Before treatment n = 30	Basic group n = 18	Group compare nursing n = 12	Before treatment n = 32	Basic group n = 20	Group compare nursing n = 12
Lysozyme, %	28,72±0,38	12,84±0,14 <0,05	27,62±0,70 >0,05 ≤0,05 <0,05	25,84±0,54 <0,05 <0,05 <0,05	11,68±0,16 <0,05	26,40±0,26 <0,05 <0,05 <0,05	24,20±0,42 <0,05 <0,05 <0,05
p							
p 1							
p 2							
IgG, g / l	3,63±0,07	5,62±0,05 <0,05	3,68±0,06 >0,05 ≤0,05 <0,05	3,28±0,08 <0,05 <0,05 <0,05	5,83±0,06 <0,05	3,25±0,05 <0,05 <0,05 <0,05	3,52±0,09 >0,05 ≤0,05 <0,05
p							
p 1							
p 2							
IgA, g / l	1,72±0,03	2,40±0,03 <0,05	1,75±0,03 >0,05 ≤0,05 <0,05	1,86±0,04 <0,05 <0,05	2,34±0,04 <0,05	1,81±0,03 <0,05 >0,05 ≤0,05	1,90±0,04 <0,05 <0,05
p							
p 1							
p 2							
IgM, g / l	1,28±0,01	2,26±0,02 <0,05	1,25±0,03 <0,05 >0,05 ≤0,05	1,32±0,05 >0,05 ≤0,05 <0,05	2,24±0,03 <0,05	1,29±0,02 >0,05 ≤0,05 <0,05	1,36±0,04 >0,05 ≤0,05 <0,05
p							
p 1							
p 2							

Notes: 1. p - probability of difference with respect to the indicator of the control group
2. p₁ - probability index difference relative to treatment
3. p₂ - the probability of differences in the indices between the main and the comparative groups

In patients with a bad habit of smoking in the treatment of a new local method, a charitable effect on the parameters of nonspecific protection in the oral liquid has been determined: the activity of lysozyme was increased by 2.3 times, whereas in the traditional local therapy only 2.1 times. The new apigel contributed to a decrease in the content of immunoglobulins in the oral liquid in smokers of tobacco with HGP against hyperacid gastritis. The level of immunoglobulins decreased in these patients relative to the level before treatment, respectively: IgG - in 1,6 times, IgA - in 1,4 times, IgM in 1,6 times. At the same time, in the traditional treatment of changes in indicators in the direction of normalization were defined less clearly.

Thus, the studied immunological parameters of oral fluid in combination with indexes of periodontal disease and oral hygiene in patients with HGP against hyperacid gastritis, which used local therapy with the use of the new APISAN apigee, indicate its greater efficacy compared with the traditional one. The conducted studies open the prospect of further study

of the newly created drug for the treatment of periodontal diseases and MMOC on the background of the pathology of the gastrointestinal tract.

Table 4

Changes in the parameters of immunological protection of oral fluid in tobacco-coated patients with HGP against hyperacidic gastritis after local therapy, $M \pm m$

Indexes	Checking group n =20	Groups of patients with HGP against hyperacid gastritis					
		No habit of smoking			Tobacco-dependent (tobacco smokers)		
		Before treatment n = 26	Basic group n =16	Group compare nursing n =10	Before treatment n = 29	Basic group n =18	Group compare nursing n =11
Lysozyme,% p p 1 p 2	28,72±0,38	11,68±0,16 <0,05	26,40±0,26 <0,05 <0,05 <0,05	24,20±0,42 <0,05	11,04±0,14 <0,05	25,40±0,18 <0,05 <0,05 <0,05	24,10±0,17 <0,05 <0,05 <0,05
IgG, g / l p p 1 p 2	3,63±0,07	5,83±0,06 <0,05	3,25±0,05 <0,05 <0,05 <0,05	3,52±0,09 >0,05 ≤0,05 <0,05	5,96±0,06 <0,05	3,68±0,05 >0,05 ≤0,05 <0,05	3,76±0,04 >0,05 ≤0,05 <0,05
IgA, g / l p p 1 p 2	1,72±0,03	2,34±0,04 <0,05	1,81±0,03 < 0,05 >0,05 ≤0,05	1,90±0,04 <0,05 <0,05	2,50±0,04 <0,05	1,79±0,03 <0,05 >0,05 ≤0,05	1,82±0,03 <0,05 <0,05 <0,05
IgM, g / l p p 1 p 2	1,28±0,01	2,24±0,03 <0,05	1,29±0,02 >0,05 ≤0,05 <0,05	1,36±0,04 >0,05 ≤0,05 <0,05	2,18±0,03 <0,05	1,30±0,04 >0,05 ≤0,05 <0,05	1,38±0,03 <0,05 <0,05 <0,05

Notes: 1. p - probability of difference with respect to the indicator of the control group
2. p₁ - probability index difference relative to treatment
3. p₂ - the probability of differences in the indices between the main and the comparative groups

Conclusions

The results of clinical and laboratory evaluation of dental status with the tendency toward the severity of periodontal disease on the background of helibacteriosis in patients with first-degree HGP with conjunctival hyperacid gastritis showed the need for correction of oral hygiene and the use of antibacterial, anti-inflammatory local therapy.

Dental oral health in patients with HGP hiperatsydnoho gastritis against the background of falling into local treatment with newly apihelyu "Apisan" based on propolis and other biologically active substances, improved to 5-7 days after the treatment, while the traditional Therapy is only 10-14 days.

Application of new toiletries kompleksnomu in treating periodontitis with hiperatsydnomu gastritis resulted in rapid normalization of nonspecific and specific protection in oral fluid and a clear improvement of the periodontal tissues compared with traditional therapy.

The proposed method of local therapy contributed to the restoration of the immunological status of the oral cavity in tobacco-affected patients with HGP in hyperacid gastritis, preventing the development of inflammatory complications, which increased the quality of their life.

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