

Results Ofintegrated Treatment Of Hypertrophic Gingivitis In Adolescents.

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Abstract: Among dental diseases, periodontal diseases dominate in their intensity, prevalence and devastating consequences for the dentition of the person. In this regard, the search for effective methods for the diagnosis, treatment and prevention of inflammatory periodontal diseases remains urgent. Recent studies have allowed to expand and complement the modern view in the regulation of many physiological processes of the body. Periodontal diseases are no exception. It is well known that in the complex treatment of periodontal diseases, dentists use a wide arsenal of medications that affect both the microflora of periodontal pockets and various mechanisms of the pathogenesis of the inflammatory process. However, modern methods and tools do not fully justify their clinical effectiveness. In this regard, an integrated approach to the treatment of gingivitis is gaining increasing recognition in dental practice.

Aim:To study the causes of hypertrophic gingivitis in adolescence, find optimal treatment options, introduce new methods in the treatment algorithm.

Material and research methods.

The study used material (oral fluid, gingival blood) obtained from 50 patients aged 12-18 years with a diagnosis of moderate hypertrophic gingivitis and 20 healthy individuals.

Depending on the treatment and preventive measures taken, all patients were divided into 2 groups of 25 people each. In the 1st control group for treatment, traditional antiseptic treatment of the oral cavity was used using a 0.05% solution of chlorhexidinebigluconate and periodontal pockets were injected with a metrogel dent gel under a bandage in the amount of 10 g for 5-7 days. In the 2nd group (n = 25), patients underwent anti-microbial, topically anti-inflammatory and decongestant therapy. Traumeel C 301.5 mg in the form of a paste was injected into the interdental space under a dressing in the amount of 10 g for 5-7 days. The 2nd group was taken as the main one.

The clinical condition of periodontal tissues was evaluated using the following indices: hygienic (Green-Wermillion), PI (Russel). The state of immune resistance of the oral cavity was evaluated using cytological methods (determination of the content of cellular elements in the liquid of the periodontal pocket); assessment of the absorption activity of neutrophilic leukocytes by calculating the phagocytic number during the induction of phagocytosis by latex particles, as well as the test of spontaneous reduction of nitro blue tetrazolium (HCT test).

Statistical data processing was performed on a PVEM using MS Excel 10.0 tools.

Results.When examining patients, hyperemia of the gingival mucosa, swelling, loose consistency, bleeding, a small amount of supra and subgingival tartar, profuse soft plaque, false pockets up to 5 mm with serous exudate, papillae enlarged and deformed, hypertrophy up to 1/2 were determined the length of the crown of the teeth, the average value of the clinical indices was IG - 2.58 ± 0.5 and PI - 5.5 ± 0.4 . After completion of the

course of therapy, improvement was noted in patients of all groups: tightening of the gingival margin, decreased bleeding, disappearance of false pockets. The positive dynamics of changes in the index indicators of the periodontal condition was noted. The highest results were achieved in the 2nd group, where the value of the PI indicator from 2.58 ± 0.5 points to 0.14 ± 0.1 , PI from 5.5 ± 0.4 to 2.56 ± 0.8 ($p < 0.05$).

Conclusion. Thus, the effectiveness of the local use of the drug "Traumeel C" is confirmed by the results of clinical and laboratory studies.

Keywords. adolescents, hypertrophic gingivitis, periodontal disease.

1. INTRODUCTION

Despite the numerous studies carried out both in our country and abroad, the etiology and pathogenesis of periodontal diseases remains unclear. A significant increase in the incidence of periodontal diseases, affecting from 20 to 60% of the population, is drawing attention to this serious problem of practical dentistry. Over the past 15 years, scientists around the world have done a great deal of research into the etiopathogenesis, prevalence, intensity of the course of gingivitis and have proposed various methods of treating this disease. But in the end, it was not finally established which factors contribute to the development of this disease, and which play a dominant role in the pathogenesis of hypertrophic gingivitis. Therefore, despite a large number of studies on the etiopathogenesis of gingivitis, an additional research method for this pathology has not been developed. Moreover, there are certain contradictions in the interpretation of research results.

Provoking factors play a rather important role in the development of diseases, being the triggering mechanism for the occurrence of gingivitis, functional disorders of the central and autonomic nervous system, taking various medications, foci of focal infection, exacerbation of chronic somatic pathology, and also errors in diet [26]. In modern concepts of pathogenesis, the impairment of the immune system is crucial. Autoimmune processes, namely, CECs, which cause tissue damage, also play an important role.

Therefore, pathological processes in the oral cavity become foci of a chronic infection and violation of the act of chewing, leading to a deterioration in the functioning of the gastrointestinal tract and exacerbation of its chronic diseases. Moreover, this dependence also manifests itself in the form of mutual burdening. Data on the study of immunological status, as a rule, are limited by the characteristics of individual indicators of nonspecific and specific reactivity of the body, as a result of which they are often not comparable, and sometimes contradictory.

In the pathogenesis of periodontal diseases, the so-called cross-immune response can be of some importance, since there is a bacterial flora on the oral mucosa and intestines, and antibodies produced on its presence can mistakenly attack mucosal epithelial cells due to their antigenic similarities structures with that of some bacteria. Most authors adhere to the autoimmune theory of development and believe that the immuno-inflammatory reaction in this disease is observed not only in periodontal tissues, but also in the intestinal mucosa. In this regard, intestinal endotoxin is considered by many authors as a trigger or "trigger" factor in the development of autoimmune diseases [27].

Chronic hypertrophic gingivitis is an inflammatory process that occurs in the gum tissue and is accompanied by proliferation. With a distal deep bite, chronic hypertrophic gingivitis is manifested by an increase in the volume of the gingival papillae, the formation of false periodontal pockets. Epithelial gingival attachment is not disturbed, there are no pathological changes in the bone tissue of the alveoli.

The indicated pathology, developing during puberty in adolescents, is characterized by typical signs of periodontal inflammation. Juvenile gingivitis is known to be difficult to treat, so increasing the effectiveness of its treatment is very important.

In addition to various methods of pathogenetic and symptomatic treatment, surgical excision of hypertrophied gums - gingivectomy - is very effective. In the treatment of this disease, the role of preoperative antiseptic treatment is also significant.

Currently, the priority of using bacteriotoxic light therapy to suppress pathogenic microflora in periodontal diseases is obvious [28]. The idea of the method is the influence of light energy of relatively small (0.5–3 W) power on a photosensitizer previously introduced into the zone of the inflammatory process. Thus, pathogenic microflora is destroyed in periodontal tissues in the area of the focus of inflammation, local immunity increases sharply, cytokinesis is blocked, collagenase and osteoclasts are inhibited. The osteoblastic process also resumes, depending on the following factors: concomitant somatic diseases, age and immune status. In addition, granulation tissue decays and lyses and a gradual restoration of the normal periodontal lining occurs.

Hypertrophic gingivitis in the general structure of periodontal diseases ranges from 5.2 to 41.6% of cases, while its frequency during hormonal changes in the body is 40-100% in the puberty period; 5.2-41.6% - during pregnancy, in individuals taking calcium antagonists - 14.5-83%, anticonvulsants - 40-50%, immunosuppressants - 30% [1.8].

Oral fluid, which characterizes the condition of periodontal tissues, is also the first element of the immune defense of a tooth as an organ. Recent studies have shown that one of the important components of the development of inflammatory processes in periodontal tissues is a violation of the processes of intercellular interaction with the participation of cytokines or immunoregulatory mechanisms at the level of the gingival connection. It has been suggested that changes in the interaction in the local network of cytokines accompany an exacerbation of the inflammatory process in periodontium [2,6,10,13].

Apparently, one of the possible objective criteria for the quality of treatment may be a change in the activity of local factors and immunity mechanisms as a result of therapy [5,8,12].

In view of this, we studied indicators of the status and reactivity of local mechanisms of oral immunity in adolescents with hypertrophic gingivitis with varying degrees of severity of this pathology before treatment and after its completion.

2. MATERIAL AND RESEARCH METHODS

The study used material (oral fluid, gingival blood) obtained from 50 patients aged 12-18 years with a diagnosis of moderate hypertrophic gingivitis and 20 healthy individuals.

Depending on the treatment and preventive measures taken, all patients were divided into 2 groups of 25 people each. In the 1st control group for treatment, traditional antiseptic treatment of the oral cavity was used using a 0.05% solution of chlorhexidinebigluconate and periodontal pockets were injected with a metrogel dent gel under a bandage in the amount of 10 g for 5-7 days. In the 2nd group (n = 25), patients underwent anti-microbial, topically anti-inflammatory and decongestant therapy. Traumeel C 301.5 mg in the form of a paste was injected into the interdental space under a dressing in the amount of 10 g for 5-7 days. The 2nd group was taken as the main one.

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latex particles, as well as the test of spontaneous reduction of nitro blue tetrazolium (HCT test).

Statistical data processing was performed on a PVEM using MS Excel 10.0 tools.

3. RESULTS AND DISCUSSION.

When examining patients, hyperemia of the gingival mucosa, swelling, loose consistency, bleeding, a small amount of supra and subgingival tartar, profuse soft plaque, false pockets up to 5 mm with serous exudate, papillae enlarged and deformed, hypertrophy up to 1/2 were determined the length of the crown of the teeth, the average value of the clinical indices was IG - 2.58 ± 0.5 and PI - 5.5 ± 0.4 . After completion of the course of therapy, improvement was noted in patients of all groups: tightening of the gingival margin, decreased bleeding, disappearance of false pockets. The results of treatment are presented in the table (table 1). The positive dynamics of changes in the index indicators of the periodontal condition was noted. The highest results were achieved in the 2nd group, where the value of the PI indicator from 2.58 ± 0.5 points to 0.14 ± 0.1 , PI from 5.5 ± 0.4 to 2.56 ± 0.8 ($p < 0.05$).

Table 1.

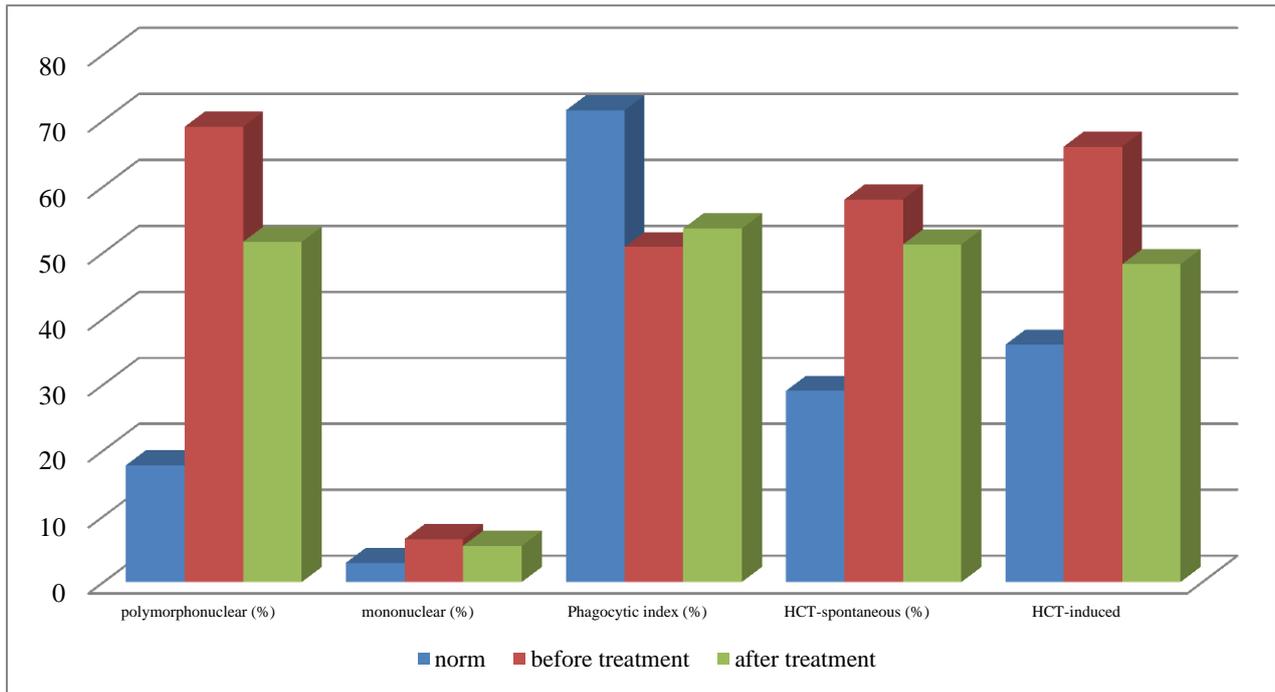
The dynamics of changes in the values of index indicators of the state periodontal before and after treatment

Indices	Group	Before Treatment	After Treatment
IG	Control Igr.n=25	2,57±0,8	0,14±0,1*
	Main IIgr.n=25	2,58±0,5	0,12±0,1*
PI	Control Igr.n=25	5,5±0,4	2,56±0.8*
	Main IIgr.n=25	5,5±0,4	0,88±0,6*

Note: * - differences regarding data before treatment are significant ($P < 0.05$)

When conducting a cytological study, it was revealed that after the complex treatment we performed, the percentage of cell integrity significantly increased. The number of epithelial cells increased three times, and the number of PMNLs and mononuclear cells decreased by half (Fig. 1), which may indicate the relief of the inflammatory process and the induction of periodontal tissue regeneration.

The indices of the absorptive activity of phagocytes of peripheral gingival blood in patients with hypertrophic gingivitis were significantly reduced in comparison with normal ones. After treatment, these indicators also remained reduced. The spontaneous activation of oxygen-dependent leukocyte metabolism according to the spontaneous HCT test was 2-2.5 times higher than normal. Under conditions of latex stimulation, the level of activation of the oxygen-dependent metabolism of phagocytic cells in patients with hypertrophic gingivitis significantly exceeded normal values, but was slightly higher than in the spontaneous HCT test. After traditional treatment, significant changes in the level of spontaneous and induced activation of oxygen-dependent phagocytic metabolism were not observed.



with hypertrophic gingivitis it was higher than normal, however, the degree of such an increase for different mediators varied significantly. The content of TNF-a, the leading pro-inflammatory immunocytokine of the acute phase, increased by 6-10 times with hypertrophic gingivitis. The number of IL-1b and IL-4 in patients with hypertrophic gingivitis was increased by 2-2.5, respectively, and did not differ significantly.

Table 2

The content of certain cytokines in the saliva of patients with hypertrophic gingivitis before and after treatment

Indicators	Control	Traditional treatment		Complex treatment	
		Before Treatment	After Treatment	Before Treatment	After Treatment
TNF-a (PCG / ml)	124,3±78,2	976,8±18,7*	417,5±80,6*	934,8±17,6*	264,4±38,2*
IL-1b (PCG / ml)	97,6±11,2	196,3±26,6*	160,2±47,3*	189,5±26,7*	128,3±36,2*
IL-4 (pkg / ml)	12,7±3,25	28,6±1,78*	17,7±3,2*	29,9±1,89*	20,3±7,77*

Note: Differences in the groups are significant at $p < 0.05$ with respect to control data.

As a result of treatment, a decrease in the content of the leading pro-inflammatory cytokine TNF-a was noted in patients' saliva.

At the end of treatment, patients showed a significant increase in the content of the leading anti-inflammatory cytokine - IL-4.

Based on the foregoing, it can be concluded that the development of hypertrophic gingivitis is accompanied by significant changes in the state of the immune defense mechanisms of the oral cavity, manifested in local changes in the composition of gum blood cells, as well as the content of immunoglobulins and cytokines in saliva. These changes vary depending on the degree of periodontal damage and reflect the processes of local inflammation and activation

of immune defense mechanisms (the predominance of polymorphonuclear and mononuclear leukocytes that migrated to the focus, the increased activity of phagocytes in a spontaneous HCT test, an increase in the content of pro-inflammatory cytokines, primarily TNF -a and IL-1b, as well as cytokines with a support profile for the cellular (IF-4) and humoral (IL-4) immune responses. At the same time, a number of indicators, from the studied ones, indicate the insufficiency of local immunity mechanisms during periodontitis (a suppressed indicator of phagocyte absorption activity, reduced ability to activate oxygen-dependent metabolism in an induced HCT test).

Successful treatment of hypertrophic gingivitis is accompanied by a normalization of the periodontal pocket cell composition (the prevalence of epithelial cells over white blood cells, a decrease in the number of degraded cells and changes in the manifestations of inflammation and activity of local immunity mechanisms: an increase in the absorptive capacity of phagocytes and a decrease in their activity in spontaneous growth with an increase in the induced HCT test, a decrease in the content of pro-inflammatory cytokine with increasing anti-inflammatory IL-4. time, despite the positive clinical results of treatment, the studied indicators demonstrate a number of residual signs of the inflammatory process and the existing insufficiency of local immunity mechanisms, which include the phagocyte absorption activity and the increased activity, which are continued to be lower than normal, when conducting HCT tests, ongoing remain increased in comparison with the normal content of TNF-a.

4. CONCLUSION.

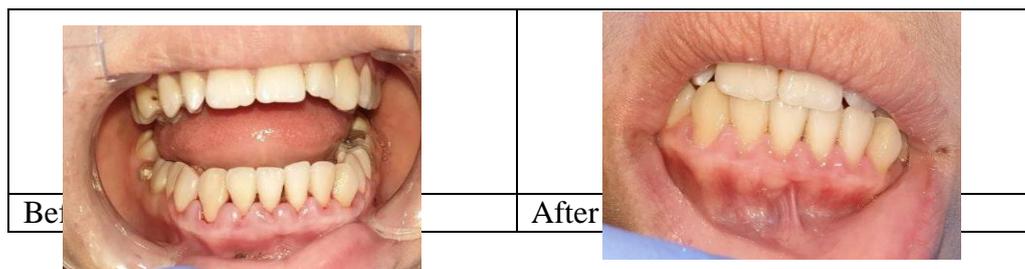
Thus, the effectiveness of the local use of the drug "Traumeel C" is confirmed by the results of clinical and laboratory studies.

Many authors emphasize that with the development of hypertrophic gingivitis, various deviations of the immune status are noted in the patient's body, depending on the age, nature and duration of the disease [17,19, 21]. Therefore, currently, the complex therapy of hypertrophic gingivitis includes means that normalize the state of the protective mechanisms of the oral cavity [22]. The creation of a large number of new highly effective drugs is due to the achievements of modern medicine in the prevention and treatment of many serious diseases in both general and dental practice. Along with successes, new problems appeared: the higher the activity of the drug, the more pronounced its side effects. The concern of doctors and patients causes a significant increase in complications from drug therapy, which prompts the search for alternative treatments [20]. In our study, we used a homeopathic medicine to treat hypertrophic gingivitis. Among the large arsenal of immunomodulating drugs, herbal preparations are preferred. Based on this, we have chosen in the complex therapy of hypertrophic gingivitis in adolescents as an immunomodulating drug "Traumeel C".

"Traumeel C" is a complex homotoxic agent with anti-inflammatory, analgesic, antiexudative, hemostatic, regenerating and immunomodulating effects. "Traumeel C" has a positive therapeutic effect, it contributes to the formation of immunological memory, which allows to increase the intensity and duration of local protective reactions. The anti-inflammatory activity of Traumeel C is comparable to the effectiveness of the classic non-steroidal anti-inflammatory drugs (NSAIDs), but the homeopathic drug Traumeel C has fewer side effects. The appointment of complex homeopathic medicines, including traumeel C, does not exclude the use of other medicines used in the treatment of periodontal diseases.

Fig.

2.



Clinical case of complex therapy

The study of the cellular composition of the periodontal pocket, the functional activity of phagocytes and the population composition of peripheral blood lymphocytes of the gums and the concentration of immunoglobulins and cytokines in saliva make it possible to assess the degree of effectiveness of therapy for patients with different severity of periodontal tissue damage. High prevalence of immunodeficiency in patients with hypertrophic gingivitis requires immunological, general clinical examination and purpose immunocorrective therapy. The most informative methods for the comprehensive diagnosis of periodontal tissues by therapy in patients with hypertrophic gingivitis are cytological studies of the periodontal pocket biomaterial and determination of local immunity indicators: a test for leukocyte migration, lysozyme and secretory immunoglobulin A in the oral fluid. To increase the effectiveness of complex local therapy, we recommend combining the use of traditional anti-inflammatory and antimicrobial therapy with Traumeels, it must be inserted into the periodontal pocket. Combined local therapy significantly reduces values of periodontal indices, accelerates the rate of epithelization and healing, reduces microbial colonization of the gums, leukocyte reaction, stimulates the regeneration of the epithelium.

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