The effectiveness of the use of synbiotic in the complex treatment of oral dysbiosis

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Abstract. Researching the scientific literature on the subject of «symbiotic therapy» in dentistry, we analyzed and patented methods for the treatment of inflammatory diseases of periodontal tissues with the use of synbiotic agents with a confirmed positive effect and a reduction in the number of repeated relapses. Also, the works of a number of scientists, whose general goal was to study the peculiarities of the use of synbiotic cultures in periodontal diseases, shared the opinion about the effectiveness and prevalence of exogenous and endogenous use of bacterial preparations in dry or liquid forms. The prospect of developing the above topic of this scientific work is to study the choice of forms, methods, possibilities and effectiveness of therapeutic and preventive measures for oral dysbiosis in patients using various orthopedic structures with the use of synbiotics to improve the quality of prosthetics and dental health. .

Keywords: *orthopedic dentistry, removable dentures, oral dysbiosis, symbiotic.*

Introduction

Despite the achievements of medical science and practice, inflammation of periodontal tissues is very common not only in middle-aged and elderly population groups, but also at a young age [3]. Irregular prophylaxis and occasional visits to a periodontist for the treatment of gum diseases complicate the course of the pathological and of a dysbiotic condition. In this regard, a patient is required to undergo repeated courses of treatment administered by a periodontist and to perform preventive measures at home as recommended by the dentist [2, 5]. The development of periodontitis is the result of an imbalance between the microflora of the oral cavity and the body's immune defenses. In order to eliminate inflammation, various

immunocorrectors and antibacterial agents (antiseptics, antibiotics, herbal remedies) are applied [4]. However, in recent years there have appeared forms of periodontitis caused by atypical infectious agents (viruses, fungi), or resistant to antibiotic therapy. Irrational use of antimicrobial drugs that negatively affect the representatives of the obligate microflora of the oral cavity results in further reduction of the local factors of antibacterial protection [6]. Various treatment options having biotherapeutic effect, involving the local and systemic use of synbiotics, phage preparations and other agents are reported to be an alternative to antibiotic therapy for periodontal diseases and dysbiosis of the oral cavity [1].

Purpose of the stud- to establish the effectiveness of the use of synbiotics in the complex of therapeutic and preventive measures of oral dysbiosis

Materials and methods. The study included 30 patients aged 40-50 who suffered from chronic generalized catarrhal gingivitis of mild and moderate severity. The patients were found to have poor oral hygiene, stress, and the digestive system disorders. All patients previously underwent conventional treatment for chronic generalized catarrhal gingivitis. They were divided into 3 groups:

- group 1 included 10 patients who were administered application of «Metrogil-Denta» once a day, the course of treatment was 10 days;
- group 2 included 10 patients who were administered application of «Asepta» gel with propolis daily, the course of treatment was 10 days;
- group 3 included 10 patients who were prescribed applications of «Asepta» gel with propolis modified by «Bifistim» synbiotic daily in a silicone mouthguard for 30 minutes; «Bifistim» lozenges once a day; « Dentaseptin Ag+» mouthrinse which was used to clean the teeth surfaces and massage the gums with an irrigator twice a day; the course of treatment was 10 days.

The performance of high-quality professional oral hygiene and individual hygiene was assessed using Fedorov-Volodkina hygienic index. Papillary-marginal-alveolar (PMA) and Muhleman indices were used to assess the clinical gingival health.

Results and discussion

Before the conventional treatment, PMA index was 31.4 ± 2.7 in patients of group 1 with chronic generalized catarrhal gingivitis; after therapy this parameter constituted 7.6 ± 1.4 ($p < 0.001$), the fact indicating the decrease of inflammation of the gingival mucous membrane by the end of treatment. However, there was no complete elimination of inflammation. Before treatment the sulcus bleeding index (Muhleman index) was 2.5 ± 0.8 in patients of group 1, after conventional treatment - 0.90 ± 0.3. The sulcus bleeding index decreased by 64%, but in most studied patients the sulcus bleeding was still manifested upon probing. Fedorov-Volodkina

hygienic index, which evidences the performance of high-quality professional oral hygiene and individual hygiene, constituted 2.5 ± 0.28 before treatment; after treatment this parameter decreased and was 1.13 ± 0.14.

Thus, the gingival oral health was reported to improve, but a sufficient decrease in the inflammatory and dysbiotic process did not occur, and sulcus bleeding was observed under probing in most patients of the studied group.

Before treatment PMA index in patients of group 2 was 30.1 ± 1.7, after treatment this parameter constituted 5.8 ± 1.9 ($p < 0.001$), which evidenced that by the end of treatment there was a decrease in inflammation of the gingival mucosa; however, inflammation was not completely eliminated. Before treatment the sulcus bleeding index in patients of group 2 was 2.6 ± 0.19; after treatment it constituted 0.85 ± 0.13. It should be noted that there was a decrease in the sulcus bleeding index by 65%, but in a significant number of the studied patients of this group the gingival tissue bled upon probing. Before treatment Fedorov-Volodkina hygienic index was 2.6 ± 0.16, after treatment this parameter decreased to 1.08 ± 0.19.

Thus, the gingival oral health was reported to improve, but a sufficient decrease in the inflammatory and dysbiotic process did not occur, and sulcus bleeding was observed under probing in most patients of group 2.

Before treatment PMA index in patients of group 3 was 28.8 ± 1.4; after treatment, this parameter constituted 2.7 ± 1.5 ($p < 0.001$), the fact evidencing a more pronounced anti-inflammatory effect than in patients of groups 1 and 2. Before treatment the sulcus bleeding index in patients of group 3 was 2.3 ± 0.19, after treatment this parameter achieved 0.23 ± 0.08. A significant decrease of the sulcus bleeding index was also reported. Before treatment Fedorov-Volodkina hygienic index was 2.55± 0.12, after treatment it decreased to 1.1 ± 0.13.

Conclusion

Therefore, the findings obtained in patients of group 3 evidenced an improved oral hygiene. There were no significant differences in Fedorov-Volodkina hygienic index between the groups. However, PMA and Muhleman indices demonstrated that the complex treatment option developed by the authors for patients with dysbiosis of the oral cavity, chronic generalized catarrhal gingivitis and including applications of «Asepta» gel with propolis modified by «Bifistim» symbiotic daily in a silicone mouthguard for 30 minutes for 10 days, «Bifistim» lozenges once a day for 14 days, « Dentaseptin Ag+» mouthrinse for cleaning the teeth surfaces and massaging the gums with an irrigator twice a day undoubtedly resulted in a pronounced anti-inflammatory effect.

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