ORAL MICROBIOTA AND CARIES INTENSITY IN PATIENTS WITH CHRONIC PERIODONTITIS AND GALLSTONE DISEASE UNDER COMPLEX TREATMENT

Muhiddinov Abdurakhmonjon Lazizovich

https://orcid.org/0009-0002-7727-7385

abduraxmon.0207@gmail.com

Bukhara State Medical Institute, Bukhara, Uzbekistan

Kazakova Nozima Nodirovna

https://orcid.org/0000-0002-9434-540X

nozima.kazakova@bsmi.uz

Bukhara State Medical Institute, Bukhara, Uzbekistan

Abstract

Oral microbiota and caries intensity were studied in patients with stage I–II chronic generalized periodontitis divided by the clinical form of hepatobiliary pathology (cholelithiasis with formed calculi, biliary sludge, no hepatobiliary pathology) who received complex or standard treatment. In group I with complex treatment (n=21) the detection rate of Streptococcus mutans decreased from 85.7% to 33.3%, Porphyromonas gingivalis from 81.0% to 19.0%, Candida albicans from 57.1% to 14.3% and Enterococcus faecalis from 28.6% to 4.8%, while Streptococcus mitis increased from 52.4% to 81.0%. After standard treatment (n=20) the changes were considerably smaller. The DMF index stabilized under complex treatment (14.6±0.9 and 14.9±0.9) and continued to grow after standard treatment (14.8±0.9 and 15.7±0.9).

Keywords

chronic generalized periodontitis, gallstone disease, oral microbiota, caries intensity, probiotics, Enterococcus faecalis, complex treatment.

МИКРОБИОТА ПОЛОСТИ РТА И ИНТЕНСИВНОСТЬ КАРИЕСА У ПАЦИЕНТОВ С ХРОНИЧЕСКИМ ПАРОДОНТИТОМ И ЖЕЛЧНОКАМЕННОЙ БОЛЕЗНЬЮ ПРИ КОМПЛЕКСНОМ ЛЕЧЕНИИ

Мухиддинов Абдурахмонжон Лазизович

https://orcid.org/0009-0002-7727-7385

abduraxmon.0207@gmail.com

Бухарский государственный медицинский институт, Бухара, Узбекистан

Казакова Нозима Нодировна

https://orcid.org/0000-0002-9434-540X

nozima.kazakova@bsmi.uz

Бухарский государственный медицинский институт, Бухара, Узбекистан

Аннотация. Изучены микробиота полости рта и интенсивность кариеса у пациентов с хроническим генерализованным пародонтитом I–II стадии, разделённых по клинической форме гепатобилиарной патологии (желчнокаменная болезнь со сформированными конкрементами, билиарный сладж, без гепатобилиарной патологии), получавших комплексное или стандартное лечение. В группе I при комплексном лечении (n=21) частота обнаружения Streptococcus mutans снизилась с 85,7% до 33,3%, Porphyromonas gingivalis — с 81,0% до 19,0%, Candida albicans — с 57,1% до 14,3%, Enterococcus faecalis — с 28,6% до 4,8%, а доля Streptococcus mitis возросла с 52,4% до 81,0%. При стандартном лечении (n=20) изменения были значительно меньше. Индекс КПУ стабилизировался при комплексном лечении (14,6±0,9 и 14,9±0,9) и продолжал расти при стандартном (14,8±0,9 и 15,7±0,9).

Ключевые слова: хронический генерализованный пародонтит, желчнокаменная болезнь, микробиота полости рта, интенсивность кариеса, пробиотики, Enterococcus faecalis, комплексное лечение.

Relevance. The oral microbiota is a key factor of periodontal inflammation and caries development. Periodontitis has been proposed as a potential predisposing factor for gallstone cholecystitis through chronic systemic inflammation [1], and probiotics are being studied as adjuncts to periodontal therapy, although the published results are mixed and depend on study design and probiotic type [2]. Data on changes of the oral microbiota and caries intensity under complex treatment in patients with periodontitis and gallstone disease are therefore relevant.

Objective. To study the changes in the composition of the oral microbiota and in caries intensity in patients with chronic generalized periodontitis associated with gallstone disease under complex and standard treatment.

Materials and Methods. Patients with stage I–II chronic generalized periodontitis were divided into three groups according to the presence and clinical form of hepatobiliary pathology (cholelithiasis with formed calculi, biliary sludge, and no hepatobiliary pathology) and, within each group, received either complex or standard treatment. The complex scheme included probiotic drops with Lactobacillus reuteri, a hyaluronate gel and correction of fat-soluble vitamin deficiency in addition to the standard periodontal protocol. Bacteriological examination determined the detection frequency of cariogenic, commensal, periodontopathogenic and fungal flora and of Enterococcus faecalis as a marker of the gut–oral axis before treatment and after 6 and 12 months. Caries intensity was assessed by the DMF index.

Results and Discussion. In group I (n=21, complex treatment), the detection rate of Streptococcus mutans decreased from 85.7% to 33.3%, Lactobacillus acidophilus from 81.0% to 28.6%, Porphyromonas gingivalis from 81.0% to 19.0%, Fusobacterium nucleatum from 71.4% to 19.0%, Aggregatibacter actinomycetemcomitans from 38.1% to 4.8%, Candida albicans from 57.1% to 14.3% and Enterococcus faecalis from 28.6% to 4.8%. At the same time, the share of commensal Streptococcus salivarius increased

from 42.9% to 76.2% and that of Streptococcus mitis from 52.4% to 81.0%. In the standard-treatment subgroup (n=20), the changes were considerably smaller: S. mutans declined only to 65.0%, P. gingivalis to 55.0%, C. albicans to 35.0%, E. faecalis remained at 20.0%, and the commensal flora increased to 55.0% (S. salivarius) and 60.0% (S. mitis). Across the three groups receiving complex treatment, S. mutans was found in 20.0–33.3%, P. gingivalis in 10.0–19.0% and C. albicans in 4.8–14.3% of patients at 12 months, and the share of commensal flora rose to 76.2–85.7%. Caries intensity stabilized under complex treatment (DMF 14.6±0.9 before and 14.9±0.9 after 12 months in group I), whereas after standard treatment it continued to grow (14.8±0.9 and 15.7±0.9). The more favorable microbiological picture in the complex subgroups was accompanied by a neutral shift of oral pH and by an increase of sIgA.

Conclusion. Complex treatment shifts the oral microbiota of patients with periodontitis and gallstone disease toward normal: the frequency of cariogenic, periodontopathogenic and fungal flora decreases, the proportion of commensal flora increases and caries intensity is stabilized. The standard protocol does not provide such an effect, which confirms the pathogenetic validity of the complex approach.

References

1. Yordanagil M., Turgut H.T., Tuzun B., Helvaci E., Okan I. Periodontitis as a potential predisposing factor for gallstone cholecystitis: exploring the role of chronic systemic inflammation // Surgery Today. – 2025. – Vol. 56, No. 6. – P. 934–946. doi:10.1007/s00595-025-03199-4.

2. Baddouri L., Hannig M. Probiotics as an adjunctive therapy in periodontitis treatment—reality or illusion—a clinical perspective // npj Biofilms and Microbiomes. – 2024. – Vol. 10. – Art. 148. doi:10.1038/s41522-024-00614-5.