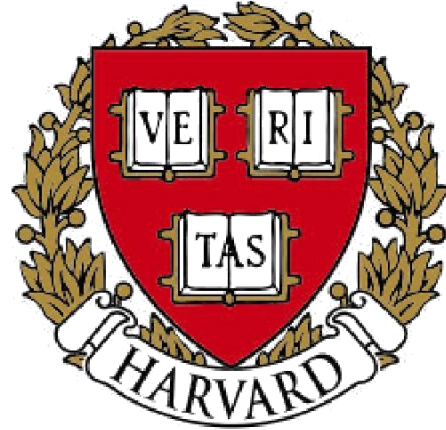


*Harvard Journal of Fundamental
and Applied Studies*



No.1. (7), January-June, 2015

“Harvard University Press”
2015



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VOLUME VIII

“Harvard University Press”

2015

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PhD in dentistry

ORAL CAVITY MICROFLORA IN PATIENTS WITH CHRONIC GENERALIZED PERIODONTITIS ACCOMPANIED BY LICHEN PLANUS

Comparative analysis of structure of oral cavity microbiocenosis in healthy people and in patients with chronic generalized periodontitis accompanied by lichen planus has been carried out. The study has revealed deep qualitative and quantitative changes in the biocenosis structure of oral cavity and its significant rearrangement in patients with CGP alone and CGP associated with OLP. The detected structure of microflora can be characterized as dysbacteriosis of oral cavity which is diagnosed in all patients with CGP. In the process of microflora studying high frequency of anaerobic bacteria incidence was considered to be the most significant fact.

Key words: chronic generalized periodontitis, lichen planus, oral cavity microflora.

Relevance. Nowadays the role of a microbial factor in development of periodontitis is doubtless, though the number of works devoted to comparative analysis of oral cavity microflora in healthy people and in patients with chronic generalized periodontitis (CGP) is rather small [1, 2, 3]. Less studied problems include bacterial contamination of the oral cavity in people with chronic generalized periodontitis (CGP) associated with oral lichen planus (OLP) which is currently considered to be one of the most manifest diseases of oral mucosa and which in 80% cases is accompanied by development of CGP [4, 5, 6]. That is why the **aim** of our study has become a comparative analysis of qualitative and quantitative microbiocenosis structure of the oral cavity in healthy people and patients with CGP associated with OLP.

Materials and methods. The study involved 60 people who were divided into three groups. The first group (14 people) included patients with CGP of initial and light severity without OLP. 26 patients with CGP (initial and light severity) associated with OLP (common form) belonged to the second group. Patients with intact paradontium and healthy oral mucosa belonged to the third control group (20 people).

The test material was taken in the fasted state in the morning before tooth brushing. On the day of sampling the patient had to abstain from tooth brushing, drug administration and mouth rinsing. The procedure of sample taking was the following: lavage of the gingival pockets was carried out by means of one Copan mouth pack which was shoved to the gingival pocket fundus. After sampling the material was immediately put into a test tube with transport medium. Within three hours the material was delivered to the microbiological laboratory in special containers which were put in a thermal bag. In order to estimate total bacterial count (TBC), a series of tenfold dilutions in normal saline was prepared of the material which was studied. The corresponding dilutions were used to carry out seeding with due account for conditions of culture on Petri dish with nutritional medium: salt agar culture medium, Sabouraud, Endo, Columbia agar, lactoagar, blood agar. After incubation time a number of grown colonies was calculated and total bacterial count (a number of colony-forming units in 1 ml) was estimated. Identification of marked microorganisms was performed by means of standard methods on the basis of study of morphological, culture-based and biochemical features using “Mikro-la-test Pliva-Lachema” sets (Order of Ministry of Healthcare of the USSR No. 535 on 22/04/1985 “About Unification of Microbiological Methods of Study Applied in Clinical Diagnostic Laboratories of Medical Treatment and Preventive Care Institutions”) [7].

Results and discussion

Examination of 60 patients made it possible to single out 1087 strains of microorganisms, representatives of 32 types such as *Streptococcus salivarius*, *Streptococcus sanguis*, *Streptococcus mitis*, *Streptococcus mutans*, *Streptococcus pyogenes*, *Peptostreptococcus micros*, *Peptostreptococcus anaerobic*, *Staphylococcus aureus*, *Staphylococcus haemolyticus*, *Staphylococcus epidermidis*, *Staphylococcus saprophyticus*, *Stomatococcus mucilaginosus*, *Escherichia coli*, *Proteus mirabilis*, *Enterobacter cloacae*, *Hafnia alvei*, *Sarcina ventriculi*, *Citrobacter freundii*, *Porphyromonas asaccharolytica*, *Porphyromonas gingivalis*, *Fusobacterium necroforum*, *Fusobacterium nucleatum*, *Prevotella bivia*, *Prevotella oralis*, *Prevotella melaninogenica*, *Prevotella intermedia*, *Prevotella buccalis*, *Bacteroides fragilis*, *Leptotrichia buccalis*, *Veillonellae alcalescens*, *Actinobacillus actinomycetemcomitans*, *Propionibacterium granulosum* and unidentified representatives of *Micrococcus*, *Lactobacillus*, *Corynebacterium* and *Candida* fungi.

The bacteriological study has also shown that the oral cavity of the patients of all groups in 100% of cases are characterized by presence of such microorganisms as *Streptococcus sanguis*, *Streptococcus mitis*, *Streptococcus mutans*, *Fusobacterium nucleatum*, *Prevotella intermedia*, *Bacteroides fragilis*, *Lactobacillus* spp. However, analysis of density of colonization by these species in patients of different groups has demonstrated that their number is significantly varied. Thus amount of potentially pathogenic gram-positive streptococci in healthy people is 100-1000 times lower than in patients with CGP and tens of thousands times lower than in patients with CGP accompanied by OLP. The same tendency is observed in comparative analysis of density of ingress of the oral cavity by anaerobic potentially pathogenic microorganisms, but the difference in indices is more significant. Besides, in patients suffering from CGP together

with comorbidity as well as OLP, considerable decrease of lactobacteria number is observed.

In the process of microflora studying high frequency of anaerobic bacteria incidence was considered to be the most significant fact. Bacterial microflora most often (up to 100%) included chromogenic gram-positive rods of *Prevotella* and *Porphyromonas* species, gram-negative fusobacteria, on average in 80% of observations there was seeding of peptostreptococci. Besides, obligate anaerobes were prevalent both in quantitative and qualitative sense.

Patients from the first and second groups were marked to have increase of specific weight in microbiocenosis structure of the oral cavity of transient microflora representatives such as: *Escherichia coli*, *Proteus mirabilis*, *Enterobacter cloacae*, *Hafnia alvei*, *Citrobacter freundii*. And although the frequency of the given strains isolation from the patients belonging to different groups is insufficient and varies from 7.1% to 21.4%, the microorganisms of control group representatives have not been not isolated at all.

Conclusions:

1. It has been established that microflora of the oral cavity of patients with chronic generalized periodontitis associated with oral lichen planus is noted to have abrupt increase of opportunistic gram-positive streptococci. The same tendency is observed in the process of comparative analysis of seeding density of anaerobic opportunistic microorganisms. The detected structure of microflora can be characterized as dysbacteriosis of oral cavity which is diagnosed in all patients.

2. This study has revealed deep qualitative and quantitative changes in the biocenosis structure of the oral cavity and its significant rearrangement in patients with CGP alone and CGP associated with OLP which occurs with the prevalence of obligate anaerobes. Patients with CGP

alone and CGP associated with OLP are noted to have specific weight increase of transient microflora representatives.

3. Therefore, in the process of invasion of the periodontal pockets with anaerobic gram-negative bacteria which are “marker” for periodontitis and with increase of their specific weight, representatives of autochthonous microflora lose the ability to control the presence of transient allotonic microorganisms.

Follow-up study perspectives. Study of group of patients with CGP accompanied by OLP is considered to be a topical issue in modern dentistry that needs to be thoroughly explored with further elaboration of preventive and curative interventions.

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