Changes in the Oral Microbiocenosis in the Process of Different Adhesive Agents Use for Fixation of Complete Removable Laminar Dentures

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Abstract. The use of adhesives to improve the fixation of complete removable laminar dentures, along with numerous benefits for the patient, creates additional risks of imbalance in some representatives of the oral microflora and, consequently, may cause or maintain the development of prosthetic stomatitis and worsen oral hygiene. Therefore, it is important to study the prevention of disorders of the normobiocenosis of the oral cavity due to the differentiated choice of adhesives based on their antimicrobial activity. The study represents the peculiarities of changes in the oral normomicrobiocenosis in the process of the prescribed adhesives’ use for fixing complete removable laminar dentures.

The aim of the study – is to study the changes in the oral microbiocenosis in the process of adhesives use for fixing complete removable laminar dentures and to assess the effectiveness of their choice based on the results.

Materials and methods of the study. There were examined 120 people, who used full removable laminar dentures, 90 of them used adhesive means prescribed by a dentist for three weeks to improve the fixation of removable laminar dentures, along with numerous bacteriological examination. Based on the analysis of culture results for microorganisms in each Group, the constancy index was determined – sowing frequency in percent and population level – colonization mass in lg CFU/ml.

Results of the study. In comparison with persons who did not use adhesives to improve the fixation of removable dentures and data before the study it was determined that the adhesive “Corega” had a preservative effect on the normo-flora, reduced the population level of pathogenic coccal microflora, yeasts; adhesive “Laculut” had an inhibitive effect on all representatives of the normal microflora, reduced sowing frequency and population level of β-hemolytic streptococci, but did not affect the pathogenic activity of Staphylococcus aureus, yeasts and gram-negative bacteria; adhesive “Protefix” had a suppressive effect on the normo-flora, did not affect the population level of pathogenic microorganisms and even increased the massiveness of colonization by gram-negative bacteria.

Conclusions. Taking into account the determined changes in the oral microbiocenosis in persons who used adhesives to improve the fixation of complete removable laminar dentures, we can talk about the effectiveness of the adhesive “Corega” for long-term use in the absence of complications in prosthetic bed tissues and with proper hygienic care of the oral cavity; adhesives “Laculut” and “Protefix” in patients with existing dysbiotic disorders and with subsequent control of the impact on the resident microflora of the oral cavity.

Key words: adhesives, complete removable laminar dentures, oral microflora, mucous membrane of prosthetic bed.

Resume. Використання адгезивних засобів для покращення фіксації повних зімних пластинкових протезів поряд із численними перевагами для пацієнта створює додаткові ризики у порушенні балансу між окремими представниками мікрофлори ротової порожнини та як наслідок, може спричинювати чи підтримувати розвиток протезних стоматитів, погіршуючи гігієну ротової порожнини. Тому важливим є дослідження щодо попередження порушень нормобіоценозу ротової порожнини через диференційований вибір адгезивних засобів з огляду на їхню протимікрофлорну активність. У дослідженні представлено особливості зміни орального нормомікрофіксації в процесі користування призначеннями адгезивними засобами для фіксації повних зімних пластинкових протезів.

Мета дослідження - вивчити зміни орального мікрофіксації в процесі користування адгезивними засобами для фіксації ПЗПП та на основі отриманих результатів оцінити ефективність їхнього вибору.

Матеріали та методи дослідження: обстежено 120 осіб, які користувалися повними зімними пластинковими
протезами, 90 з яких – для покращення фікації три тижні використовували призначені лікарем-стоматологом адгезивні засоби. У всіх пацієнтів проводили збір матеріалу для бактеріологічного дослідження. На основі аналізу результатів посівів для мікроорганізмів кожної групи визначали індекс постійності – частоту висівання у відсотках та популяційний рівень – масивність колонізації у Ig KУО/мл.

Результати дослідження та обговорення. У порівнянні з особами, які не використовували адгезивні засоби для покращення фікації знімних протезів та даними до початку дослідження встановлено, що адгезив «Корега» мав збільшуючу дію на нормофлору, зменшував популяційний рівень представників патогенної ковокової мікрофлори, дріжджоподібних грибів; адгезив «Лакалут» мав пригнічуючий вплив на усіх представників нормальної мікрофлори, зменшував частоту висівання та популяційний рівень β-гемолітичних стрептококів, але не впливаю на патогенну активність золотистого стафілококу, дріжджоподібних грибів і грам-негативних бактерій; адгезив «Протефікс» мав пригнічуючий вплив на нормофлору, не впливаю на популяційний рівень патогенних мікроорганізмів і навіть збільшував масивність колонізації грам-негативними бактеріями.

Висновки. З огляду на встановлені зміни орального мікробіоценозу в осіб, які для покращення фікації ПЗПП використовували адгезивні засоби, можемо стверджувати про ефективність призначення адгезиву «Корега» для тривалого використання за відсутності ускладень у матеріалу ризику протеза ложка і намір покращення адгезиву. адгезив «Лакалут» і «Протефікс» пацієнтам, із наявними діабетичними порушеннями та з послідуючим контролем впливу на резидентну мікрофлору ротової порожнини.

Ключові слова: адгезивні засоби, повні змінні пластинкові протези, мікрофлора ротової порожнини, слизова оболонка протезного ложа

Problem statement and analysis of the latest research
Indices of microbiocenosis of the oral cavity in persons using removable prostheses are sensitive markers for assessing the health of the oral cavity in the prevention and treatment of prosthetic stomatitis, hyposalivation, oral hygiene, the choice of basic material [1-4]. The role of study the qualitative and quantitative composition of microbial associations in the occurrence of inflammatory processes in the oral cavity of patients using complete removable laminar prostheses (CRLP) allows us to determine the intensity of the inflammatory process, the degree of dysbiosis and the role of normal and pathogenic microflora in the formation of pathological microbial associations [5].

Microbiological analysis is also important in ensuring the proper hygienic condition of the oral cavity in persons with removable dentures, in particular, and in case of the use of adhesives to improve fixation [6].

Lack of objective criteria for the selection of adhesives, the emergence of additional retention area on the bases of prostheses to some extent leads to a violation of the normobiocenosis of the oral cavity and increased inflammatory processes of the mucous membrane of the prosthetic bed (MMPB) in persons using adhesives to improve the removable dentures’ fixation. The use of the offered therapeutic-preventive complex helps to restore the resident microflora in patients with complications after the use of adhesives [7, 8].

The study of the quantitative indices of microbiota of the oral mucous membrane in dynamics during orthopedic rehabilitation of patients with complete removable acrylic prostheses, who used and did not use adhesives, reveals certain microbiological peculiarities that allow the use of the offered by authors, adhesives with anti-inflammatory action to ensure the restoration and preservation of the normobiocenosis of the biotope of the oral mucous membrane [9].

Important preventive measures when using adhesives to improve the fixation of CRLP are our recommendations regarding the criteria for their choice, depending on the experimentally determined level of antimicrobial activity [10].

Therefore, in our opinion, it is necessary to study further the mechanisms of the preservation of oral normobiocenosis in the process of using adhesives for fixing CRLP, administered on the basis of their previously studied antimicrobial activity.

Aim of the research is to study the oral microbiocenosis changes in the process of using adhesives for fixing CRLP and on the basis of the results obtained to evaluate the effectiveness of their choice.

Materials and methods of the study
In the clinic of the Department of Dentistry of Postgraduate Education in Ivano-Frankivsk National Medical University, there were examined 120 patients who used CRLP two months after their manufacture. At the time of the examination, the patients had no signs of acute prosthetic stomatitis or other inflammatory processes in the oral cavity. In our experiment we’ve studied the antimicrobial activity of the most common adhesives and on this basis there were offered some recommendations for their use [10]. Using the results obtained, we’ve formed the following Groups. Thus, 30 patients who did not use adhesives to improve the fixation of removable dentures were in Group I. The remaining 90 people were given adhesive pastes to improve denture fixation for 3 weeks: “Corega Extra Strong” (manufactured by “Stafford-Miller Ir. Ltd.”, Dungarvan, Co. Waterford, Ireland) – was given to 30 people (Group II), “Lakalut Dent Mint” (manufactured by “Dr.Theiss
Material for bacteriological examination was taken in patients from the surface of MMPB during a dental examination before use and after 3 weeks of the use of adhesives for fixing CRLP. To standardize the procedure of material collection, there were used pre-sterilized stencils, which separated a 1 cm² area on the surface of the mucous membrane. Mucus, oral fluid, and microbial plaque were removed from the mucosal surface with a sterile cotton swab, placed in a 1.0 ml tube of sterile saline and resuspended thoroughly. 0.1 ml of the material samples prepared as described above, was immediately inoculated on the representative of the resident microflora, lactase activity of enterobacteria, pigmentation.

The bacteriological study took into account the presence in cultures of the following microorganisms (representatives of aerobic and facultative-aerobic microflora): 1) α-hemolytic Streptococcus sp., 2) β-hemolytic Streptococcus pyogenes, 3) Staphylococcus aureus, 5) epidermal Stomatococcus mucilaginosus, 6) Veillonella parvula, 7) diphtheroids Corynebacterium sp., 8) bacilli Bacillus sp., 9) E. coli and other enterobacteria, 10) Pseudomonas aeruginosa and other non-fermenting gram-negative bacilli, 11) yeast-like fungi Candida sp.

Quantitative accounting of colonies was carried out taking into account their species (or genus) affiliation. Based on the analysis of crop results for microorganisms of each Group, the constancy index (CI) was determined – inoculations’ rate in percent and population level (PL), which was expressed in lg CFU/ml [11].

Microbiological research was performed on the basis of the scientific-research laboratory of microbiological studies of IFNMU (supervisor Doctor of Medical Sciences, Professor, Head of the Department of Microbiology, Virology and Immunology Kutsky RV).

Statistical processing was performed using the program Statistica 5.0.

Results
Analysis of the oral microbiocenosis in the process of using the administered adhesives to fix CRLP and evaluation of the effectiveness (feasibility) of their choice was based on data concerning the frequency of detection (constancy index, %) and population level (lg CFU/ml) of representatives of both resident oral microflora and microflora with high potential for pathogenicity on MMPB.

Among the representatives of the resident microflora, the frequency of detection of α-hemolytic streptococcus was 100% in all Groups of study (see Fig. 1). The persistence index of Staphylococcus epidermidis on MMPB of patients before and after the use of adhesives for fixing CRLP did not change significantly in Groups I and IV, significantly decreased in Groups II and III, respectively at 37.5% and 42.9%. A significant decrease in the culture frequency of this microorganism was observed in Groups II and III, compared with Group I, at 49.8% and 60.1%, respectively.

Assessing the impact of the use of adhesives on the representative of the resident microflora of Stomatococcus mucilaginosus, it was noted a significant decrease in CI in Groups III and IV, compared with data before the use of the respective adhesives – at 42.8% and 30.7%; as well as compared to the value in Group I, respectively at 49.9% and 43.7%.

CI Veillonella parvula significantly decreased compared to the indices for the use of adhesives in Groups III and IV, as well as compared with data from Group I, at 64.2%, 30.7%; at 66.6%, at 40.0%.

The frequency of detection of Corynebacterium sp. had a significant decrease after three weeks of using the adhesive only in Group IV – at 33.5%. However, the CI of this microorganism significantly decreased in Groups II, III and IV, compared with the Group I at 33.3%, 66.6% and 55.7%, respectively.

After the use of adhesives in Groups II, III and IV, we did not find a representative of the resident microflora of Bacillus sp.

The change in the index of constancy (%) of the oral microflora representatives with a high potential for pathogenicity on MMPB during the use of various adhesives for fixing CRLP is presented in Fig.2.

The constancy index of β-hemolytic Streptococcus sp. on MMPB patients before and after the use of adhesives for fixing CRLP did not change significantly in Groups I and IV, in Groups II and III decreased significantly at 62.5% and 71.2%, respectively. Compared with the data in Group I, the CI did not change significantly in Group IV, but decreased significantly at 62.5% in Group II and at 74.9% in Group III.

We’ve observed an insignificant decrease in Staphylococcus aureus in Groups II and III and an insignificant increase in Group IV, compared with data before the use of the respective adhesives. However, there was a significant decrease in all Groups, compared with the control Group – Group I, respectively, at 33.3% (Group II), at 66.6% (Group III), at 44.3% (Group IV).

Frequency of detection of fungi of the genus...
Fig. 1. Changes in the index of permanence (%) of the representatives of resident oral microflora on MMPB in the process of the administered adhesives use for fixing CRLP.
Note: * – p<0.05 in comparison with the initial level; + – p<0.05 in comparison with patients of Group I.

Fig. 2. Changes in the index of permanence (%) of the representatives of resident oral microflora on MMPB in the process of the administered adhesives use for fixing CRLP
Corynebacterium sp. significantly decreased three weeks after the use of adhesives in Group III at 62.5% compared with data from Group I and increased significantly in Group IV, compared with data before the use of adhesive at 67%. However, the CI in Group III did not change compared to baseline.

The persistence index of E. coli decreased significantly in Group III, compared with Group I at 67%. In other Groups there were not noted significant changes in the reduction or increase of E. coli, as compared with data before the use of the adhesive, and with the control Group I.

To form a holistic picture of the impact of adhesives administered by our recommendations, on the microbiocenosis of MMPB of patients with CRLP, we’ve studied the population level of representatives of resident oral microflora and microflora with high potential for pathogenicity.

Analyzing the population level of resident oral microflora in Group II, a significant decrease in the mass colonization of Staphylococcus epidermidis and Corynebacterium sp., compared with baseline at 12.2% and 15.9%, respectively (see Table 1). In the same Group we note a significant decrease in the population level of α-hemolytic Streptococcus sp. and Corynebacterium sp. compared with the content in Group I, respectively at 9.3% and 22.8% (p<0.05).

Group III after three weeks of use of the adhesive is characterized by a significant decrease in the population level of all studied representatives of the resident microflora, compared with baseline values: α-hemolytic Streptococcus sp. at 16.2%, Staphylococcus epidermidis at 23.5%, Stomatococcus mucilaginosus at 11.3%, Veillonella parvula at 22.6%, Corynebacterium sp. at 11.4%. The tendency of significant decrease and, accordingly, suppression of the same representatives of the resident microflora was observed, in comparison with the data in Group I: α-hemolytic Streptococcus sp. at 22.9%, Staphylococcus epidermidis at 32.6%, Stomatococcus mucilaginosus at 17.5%, Veillonella parvula at 25.4%, Corynebacterium sp. at 32.0% (p<0.05).

In patients included in Group IV, after three weeks of use of the appropriate adhesive, compared with the initial values, there was a significant decrease in the population level of the following representatives of the resident microflora: α-hemolytic Streptococcus sp. at 12.3%, Stomatococcus mucilaginosus at 17.4%, Veillonella parvula at 11.2%, Corynebacterium sp. at 11.8%. Co-directed (p<0.05, significant decrease) are changes in the resident microflora in Group IV, compared with the corresponding indices of microorganisms in Group I: α-hemolytic Streptococcus sp. at 18.9%, Stomatococcus mucilaginosus at 22.9%, Veillonella parvula at 19.9%, Corynebacterium sp. at 7.5%.

Changes in the population level of representatives of the oral microflora with a high potential for pathogenicity to MMPB during the use of administered adhesives for fixing CRLP in Group II show a tendency to a significant decrease: compared to baseline β-hemolytic Streptococcus sp. at 15.4%, Candida sp. – at 16.1%; compared with data in Group I β-hemolytic Streptococcus sp. – at 24.1%, Staphylococcus aureus – at 16.8% and Candida sp. – at 14.6% (p<0.05), (see Table 2).

We’ve observed a significant decrease in β-hemolytic Streptococcus sp. at 12.6% in Group III, compared with the index before the use of the appropriate adhesive and at 22.8%, compared with data in Group I. The population level of Staphylococcus aureus was significantly reduced at 7.8% compared to the Group I (p<0.05).

In Group IV, the population level of Staphylococcus aureus, Candida sp. Has significantly decreased compared to the data in the Group I, respectively, at 22.0%, by 20.1%. On the other hand, the level of colonization of E. coli significantly increased both in comparison with the index before the use of the adhesive and in comparison with the data in Group I, at 31% and 35.1%, respectively.

We’ve noted the appearance in Groups III and IV of representatives of Pseudomonas aeruginosa with high potential for pathogenicity, the content of which did not change compared to the original data and differed significantly from the Group I, where such microorganisms were absent.

Discussion

The use of all types of investigated adhesives for fixing CRLP in Groups II, III, IV leads to changes in quantitative and qualitative characteristics of the microflora of MMPB. In patients of Group I, minimal changes in the oral microbiocenosis were observed: a slight increase in the colonization mass and the frequency of Staphylococcus aureus, the population level of β-hemolytic streptococci and the diphtheroids persistence index.

After 3 weeks of using adhesives to improve the fixation of CRLP, significant changes in the number of representatives of both resident and transient microflora of the oral cavity were observed. The main representatives of the resident microflora of the oral cavity – α-hemolytic streptococci were found in all patients without exception. However, their population level decreased, especially in Group III – at 16.2% (p<0.05) and in Group IV – at 12.3% (p<0.05) relative to baseline. In Group II, a slight and insignificant decrease in the mass colonization of MMPB by α-hemolytic streptococci at 5.1% (p>0.05) was observed.

As for other representatives of the normomicrobiocenosis of the oral cavity (stomatococci, veilonella, epidermal staphylococcus, corynebacteria and bacilli), the most pronounced depressant effect on them was observed in Group III. In the same Group of patients,
Table 1. Changes in the population level (lg CFU/ml) of representatives of the resident oral microflora in the MMPB of patients during the use of administered adhesives for fixing CRLP

<table>
<thead>
<tr>
<th>Groups of microorganisms</th>
<th>I Before the study</th>
<th>After 3 weeks</th>
<th>II Before the study</th>
<th>After 3 weeks</th>
<th>III Before the study</th>
<th>After 3 weeks</th>
<th>IV Before the study</th>
<th>After 3 weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>a-hemolytic Streptococcus sp.</td>
<td>5.40±0.13</td>
<td>5.72±0.14</td>
<td>5.47±0.13</td>
<td>5.19±0.19</td>
<td>5.26±0.12</td>
<td>4.41±0.21</td>
<td>5.29±0.12</td>
<td>4.64±0.21</td>
</tr>
<tr>
<td>Staphylococcus epidermidis</td>
<td>4.23±0.16</td>
<td>4.35±0.16</td>
<td>4.35±0.09</td>
<td>3.82±0.28*</td>
<td>3.83±0.12</td>
<td>2.93±0.10*</td>
<td>4.27±0.13</td>
<td>4.24±0.22</td>
</tr>
<tr>
<td>Stomatococcus mucilaginosus</td>
<td>3.77±0.09</td>
<td>4.01±0.19</td>
<td>3.74±0.13</td>
<td>4.04±0.24</td>
<td>3.73±0.16</td>
<td>3.31±0.19*</td>
<td>3.74±0.10</td>
<td>3.09±0.18*</td>
</tr>
<tr>
<td>Veillonella parvula</td>
<td>4.23±0.15</td>
<td>4.13±0.12</td>
<td>3.86±0.12</td>
<td>3.81±0.27</td>
<td>3.98±0.15</td>
<td>3.08±0.19*</td>
<td>3.73±0.12</td>
<td>3.31±0.19*</td>
</tr>
<tr>
<td>Corynebacterium sp.</td>
<td>4.48±0.27</td>
<td>4.12±0.22</td>
<td>3.78±0.14</td>
<td>3.18±0.25*/+</td>
<td>3.16±0.16</td>
<td>2.80±0.11*/+</td>
<td>3.23±0.11</td>
<td>2.85±0.11*/+</td>
</tr>
<tr>
<td>Bacillus sp.</td>
<td>3.85±0.22</td>
<td>3.50±0.13</td>
<td>3.00±0/</td>
<td>3.85±0.04</td>
<td>3.04±0/</td>
<td>3.70±0.03</td>
<td>3.70±0/</td>
<td>3.70±0/</td>
</tr>
</tbody>
</table>

Note: * – p<0.05 in comparison with the initial level; † – p<0.05 in comparison with patients of Group I.

Table 2. Changes in the population level (lg CFU/ml) of oral microflora representatives with a high potential for pathogenicity in MMPB in the process of the administered adhesives use for fixing CRLP

<table>
<thead>
<tr>
<th>Groups of microorganisms</th>
<th>I Before the study</th>
<th>After 3 weeks</th>
<th>II Before the study</th>
<th>After 3 weeks</th>
<th>III Before the study</th>
<th>After 3 weeks</th>
<th>IV Before the study</th>
<th>After 3 weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>b-hemolytic Streptococcus sp.</td>
<td>3.17±0.08</td>
<td>3.69±0.11*</td>
<td>3.31±0.14</td>
<td>2.80±0.11*/+</td>
<td>3.26±0.11</td>
<td>2.85±0.12*/+</td>
<td>3.28±0.08</td>
<td>3.60±0.22</td>
</tr>
<tr>
<td>Staphylococcus aureus</td>
<td>3.59±0.18</td>
<td>4.23±0.12*</td>
<td>3.51±0.16</td>
<td>3.52±0.22*/+</td>
<td>3.78±0.20</td>
<td>3.90±0.24*/+</td>
<td>3.68±0.15</td>
<td>3.30±0.19*/+</td>
</tr>
<tr>
<td>Candida sp.</td>
<td>3.53±0.16</td>
<td>3.78±0.15</td>
<td>3.85±0.23</td>
<td>3.23±0.16*/+</td>
<td>3.57±0.18</td>
<td>3.35±0.18</td>
<td>3.33±0.11</td>
<td>3.02±0.17*/+</td>
</tr>
<tr>
<td>E. coli</td>
<td>2.85±0.04</td>
<td>3.03±0.11</td>
<td>3.20±0.11</td>
<td>3.13±0.18</td>
<td>3.20±0.13</td>
<td>3.00±0.03</td>
<td>3.13±0.09</td>
<td>4.10±0.17*/+</td>
</tr>
<tr>
<td>Pseudomonas aeruginosa</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2.70±0.03</td>
<td>2.70±0.03*/+</td>
<td>5.00±0.05</td>
</tr>
</tbody>
</table>

Note: * – p<0.05 in comparison with the initial level; † – p<0.05 in comparison with patients of Group I.
a significant (p<0.05) decrease in both PL and CI of all these microorganisms was recorded.

In Group IV, there was determined a significant (p<0.05) decrease in PL and CI of stomatococcus, veilonella, corynebacteria and bacilli, but not epidermal staphylococcus. The maximum conservative effect on the normal flora representatives of the oral cavity was observed in patients of Group II. They showed a slight significant decrease in PL and CI of epidermal staphylococci and corynebacteria, against the background of preservation of MMPB colonization by α-hemolytic streptococci, stomatococci and veilonella compared with data before the use of the adhesive.

Our study confirms the data of Mykhaylenko TM (2013), Rozhko SM (2019) concerning the increase in the colonization of MMPB by pathogenic microorganisms in patients using CRLP [1,2].

The presence of CRLP structures in the oral cavity is a factor that contributes to the increase in the population level of β-hemolytic streptococci and Staphylococcus aureus in MMPB in patients of Group I after 3 weeks of the initial examination (p<0.05). Adhesives administered for patients of Groups II (“Corega”) and III (“Lacalut”) effectively counteract the colonization of the mucous membrane by β-hemolytic streptococci, as evidenced by a significant reduction in PL and CI when compared with both baseline and Group I patients who did not use adhesives. The effect of these adhesives on the rates of colonization of MMPB with Staphylococcus aureus was less pronounced – their reduction was significant only in comparison with the control Group (p<0.05). In Group IV (“Protefix”) there was not found a significant effect of the adhesive on the colonization of MMPB by β-geomolytic streptococci and Staphylococcus aureus.

Yeast-like fungi of the genus Candida are considered to be the most common causative agent of prosthetic stomatitis among all members of the oral microflora. The results of microbiological studies show that adhesives in Groups III (“Lacalut”) and IV (“Protefix”) do not have a depressing or stimulating effect on the life activity of Candida in the microbiocenoses of MMPB. In Group II, under the influence of the adhesive “Corega” in the dynamics a decrease in the PL of yeast fungi on MMPB was observed (p<0.05).

A small percentage of patients in each Group enterobacteria and pseudomonads that do not belong to the resident oral microflora, were found on MMPB. Their presence (in some cases in significant quantities – 5.0-5.7 lg CFU/ml) may indicate unsatisfactory hygienic condition of the oral cavity and removable prostheses and may be confirmed by known studies of Mykhaylenko TM (2015) [6]. The use of adhesive creams by patients did not reduce the colonization of MMPB with gram-negative bacteria. In the Group IV of patients who used “Protefix” adhesive to improve the fixation of CRLP, the mass of colonization of the prosthetic bed with enterobacteria and pseudomonads (in total) has significantly increased – from 3.60±0.26 lg CFU/ml to 4.28±0.19 lg CFU/ml.

Thus, the increase in the colonization of MMPB by representatives of the pathogenic microflora of the oral cavity and the suppression of normobiocenosis in individuals who use adhesives to improve the fixation of CRLP is considered a trigger for complications in MMPB.

Comparing the results obtained with experimental data on the antimicrobial properties of adhesives, we can say that due to the effect of adhesive cream “Corega” (“Stafford-Miller Ir. Ltd.”, Dungarvan, Co. Waterford, Ireland) on the resident microflora of the oral cavity and fungi of the genus Candida, its use is appropriate for patients for long-term use in the absence of complications in tissues of the prosthetic bed and with proper hygienic care of the oral cavity.

Due to the decrease in the population level and constancy index of oral microflora with high potential for pathogenicity in MMPB, persons with dysbiotic disorders, it is advisable to use adhesives to fix CRLP “Lacalut” (“Dr. Theiss Naturwaren GmbH”, Germany), “Protefix” (“Queisser Pharma GmbH”, Co. KG, Germany), with control of the impact on the main representatives of the resident microflora of the oral cavity.

Conclusion

1. A characteristic difference in the microflora of the oral cavity in persons who used adhesives to improve the fixation of CRLP is the increased massive colonization of MMPB with pathogenic microorganisms (β-hemolytic streptococci, Staphylococcus aureus, fungi of the genus Candida) against the background of reducing the culture frequency and the population level of the representatives of resident oral microflora, compared with those who did not use adhesives.

2. The adhesive “Corega” has the maximum preserving effect on the normal microflora of MMPB and the minimum suppressive effect on the development of yeast-like fungi of the genus Candida.

3. Adhesives “Lacalut” and “Protefix” have the same type of effect on the microflora of MMPB in persons who use adhesives to improve the fixation of CRLP: suppression of the normal microflora of the oral mucous membrane (especially α-hemolytic streptococci, stomatococci, veilonella, corynebacteria) in the case of a simultaneous decrease in the colonization of MMPB by β-hemolytic streptococci.

4. Taking into account the determined changes in the oral microbiocenosis in persons who used adhesives to improve the fixation of CRLP, we can say about the effectiveness of the adhesive “Corega” for a long-term use in the absence of complications in the prosthetic bed tissues and with proper oral hygiene; adhesives “Lacalut” and “Protefix” in patients with existing dysbiotic disorders and with subsequent control of the
impact on the resident microflora of the oral cavity.

References

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