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Modern views on the Complex Treatment of Post-Uronaplastic Surgery in Children with Tooth-Jaw Anomaly and Deformities

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Annotation: After various types of interventions, postoperative defects often occur in the area of the anterior, middle and other parts of the hard palate or at the border of the hard and soft palate, and the number of complications in the postoperative period remains high (from 10 to 30%). One of the reasons for unsatisfactory results is disturbances in the microbiocenosis of the oral cavity in such children. Correction of the microbiocenosis of the oral cavity in people with various dental diseases is a necessary addition to the treatment regimen, providing a productive effect against the growth of opportunistic bacteria, therefore, special attention should be paid to the use of targeted biocorrection drugs that restore teeth..

Keywords: congenital cleft lip and palate, treatment methods, microbiocenosis of the oral cavity.

In the domestic and foreign literature one can find works whose authors report on the results of treatment of patients with cleft lip and palate who were operated on at different ages using various uranoplasty techniques. However, we have not encountered studies characterizing the relationship between the biometric parameters of the upper jaw and the uranoplasty technique. Comparative analysis of treatment results in the vast majority of cases is carried out with an emphasis on any diagnostic criterion. At the same time, studying the results of surgical intervention in patients with cleft lip and palate is possible only by using a complex diagnostic algorithm that includes methods of biometric analysis, graphic recording of parameters of the upper jaw, and X-ray examination methods.

Unjustifiably little attention is paid to the issues of graphic reconstruction analysis of the shape and size of the upper part of the oral cavity in patients with congenital malformations of the maxillofacial region. The insufficiency of the information base regarding the peculiarities of changes in the biometric parameters of the upper jaw during various methods of uranoplasty, as well as additional methods for diagnosing disorders of the dentoalveolar system in patients with congenital malformations, dictates the need for further research.

The anatomical structure of the nose and oropharynx in these patients affects the composition of the microflora of the oral cavity. The most important condition for nonspecific protection is normal microflora. Due to the synthesis of large amounts of lactic acid, many representatives of autoflora (primarily streptococci lactobacillus) have a pronounced antagonistic effect on pathogenic and opportunistic microorganisms. In the postoperative period, the composition of the autoflora changes, which can lead to the development of dysbiosis, which is characterized by an increase in the release of opportunistic species, such as Staph aureus. Enterococcus, fungi of the genus Candida, and a decrease in the number of indicator species of Lactobacilli Streptococcus, which can affect the course of healing processes.

I.A. Bryzgalova et al. (2010) observed patients with clefts of the alveolar process, hard and soft palate, studying the qualitative and quantitative nature of changes in the composition of the microflora of the oral cavity before and after surgery. In the preoperative period, cultures were taken from the edges of the cleft, in the postoperative period from the wound surface in the area of sutures on the 3-4th and 10th days after surgical treatment. Microbiological material was studied using generally accepted methods, involving the isolation of coccal group D, enterobacteria, and fungi of the genus Candida.

In all examined children, the following main pathogens were identified in the preoperative period: Streptococcus saungius, Peptostreptococcus anaerobius, Actinomyces spp., Fusobacterium spp., Prevotella intermedia, Serratia marcescens. Gram-negative flora amounted to 41.7%. Streptococcus was detected in 80% of patients, peptostreptococcus in 60%, fusobacteria, and actinomycetes in 40%. Prevotella intermedia. Serratia marcescens, Haemophilius spp. Moreover, the bacteria were not isolated in a monoculture, but in communities in associations of 3 to 6 species. On the 3-4th day there was an increase in the growth of microflora. The most common species was Streptococcus saungius (75%). Fusobacterium spp. (50%). Serratia marcescens (75%). Some species were not identified at all (Actinomyces spp.). If the course of the postoperative period is favorable, epithelization of the wound is noted by the 9-10th day. At the same time, there is also a tendency towards normalization of the species and quantitative composition of the microflora of the oral cavity.

Thus, the elimination of anatomical disorders of the oral cavity, characteristic of patients with clefts of the hard and soft palate, leads to a gradual normalization of the quantitative and qualitative composition of the oral microflora, which must be taken into account when prescribing antibacterial and anti-inflammatory therapy in the postoperative period.

Today, comprehensive treatment of dental diseases is generally recognized as a modern priority. In this regard, correction of the microbiocenosis of the oral cavity in people with various dental diseases is a necessary addition to the treatment regimen, providing a protective effect against the growth of opportunistic bacteria.

From a microbiological point of view, the discovery and study of factors that ensure the persistence of opportunistic microorganisms are of great interest, since the creation of stable, dysfunctional microbiocenoses poses the problem of finding drugs aimed at reducing and disappearing these properties in cultures that colonize the oral cavity of people suffering from dysbacteriosis. In this regard, the question of the possible impact of bacterial drugs on factors contributing to persistence is of some interest. Conditional provoking factors for the development of complications can be exacerbations of chronic diseases of the upper respiratory tract, allergic reactions, hormonal imbalances, that is, conditions leading to the development of general and tissue hypoxia. Interesting data were obtained (Rusyaneva E.E. et al., 2002) after rhinocheiloplasty surgery for congenital cleft lip and palate at the age of 12 to 18 years. A comparative analysis of the results obtained for four biotopes showed that the growth of microorganisms is observed on all mucous membranes, with the exception of the oronasal mouth (8%). Monocultures were isolated in 42% of cases from the nasal mucosa on the side without the lesion and the mucosa of the oronasal anastomosis, while monocultures were absent in the pharynx in 100% of cases, and on the mucosa on the affected side in every fourth patient. Among the leading associations were two-component ones for the mucous membranes of the nose and three-component ones for the mucous membranes of the oronasal anastomosis and pharynx.

Thus, the microflora that determines the dysbiosis of the studied biotopes is Staph. aureus, Str. group D. E. fecalis, yeast-like fungi of the genus Candida. The listed microorganisms were more often and in large quantities found on the mucous membrane of the oronasal anastomosis and the nasal mucosa on the affected side.

The same work analyzed the results of immunological studies. It turned out that the most significant disturbances are determined in the phagocytic function of neutrophils. These disorders were manifested by a significant decrease in the phagocytic activity of neutrophils, their digestive ability, as well as the level of serum lysozyme.

Interesting data is provided by L.N. Rogov et al. (2015). With congenital cleft lip and palate in children, favorable conditions are formed for increasing the colonization of endotoxic microorganisms and microflora of the nasal cavity in the periodontal grooves of 3-4 teeth, as well as in the area of the edges of the cleft palate. i The number of enterotoxic bacteria along the cleft is almost 6 times higher than in children without pathology. In the oral mucosa, the basement membrane is thin and undifferentiated; the amorphous substance is more permeable, which creates favorable conditions for the spread of opportunistic microflora.

The emerging phenomenon of “mouth breathing” leads to hyposalivation and decreased production of mucin and lysozyme. Against the background of a decrease in local immunological reactivity, the magnesium-calcium balance, which is involved in the mechanisms of resistance and regeneration of the oral mucosa, also changes. It is quite obvious that all these changes cause excessive growth of microbes.

A.M. provides interesting data in his work. Asimov (2007). Thus, the results of microbiological and immunological studies showed that IRS-19, in combination with drug treatment before and after palate surgery, has a significant positive effect on the microbiocenosis and factors of local protection of the oral cavity from the very first day after use, optimizing the course of the wound process.

In recent years, the revision of the microbiological concept of influencing the microflora of the oral cavity has been of particular interest. The use of probiotics, preparations of microbial or non-microbial origin, which suppress the growth of pathogenic and opportunistic microflora and their associations, is justified.

However, a promising direction in the complex treatment of oral pathology is the use of bacterial preparations, the active principles of which are strains of representatives of normal microflora with high antagonistic, enzymatic and immunostimulating properties.

However, it must be taken into account that oral dysbiosis almost never occurs in isolation, therefore, to correct it, it is necessary to identify and eliminate the factors that provoked its development. Without this, therapy with bacterial drugs will be ineffective.

Today there is a sufficient choice of means for preserving and maintaining the balance of the normal microflora of the oral cavity, so a more urgent task is their rational and targeted use, taking into account the individual characteristics of a particular microbiocenosis of a particular patient.

The healing of postoperative wounds after uranoplasty depends on many clinical reasons (error in the choice of surgical technique, technical failures, errors in postoperative management, etc.), and the presence of general somatic diseases. All this ultimately affects the characteristics of metabolic and structural changes in the tissues of the palate, which directly affect the course of postoperative regeneration and healing processes.

Based on modern ideas that energy metabolism occupies one of the central places in the metabolism of organs and tissues and can act as a decisive factor determining the direction and nature of the development of pathological processes, according to N.A. Kolesova (2012), it is advisable to study its features in various types of palate defects, since it is these indicators, in combination with changes in the structure, that can reveal the main factors that cause the low effectiveness of surgical interventions. A feature of the energy metabolism of the mucous membrane of the palate in congenital nonunions is the predominance of glycolysis in the epithelial and connective tissue cellular elements, which can be regarded as a sign of the development of compensatory-adaptive processes in conditions of impaired trophic provision of tissues in this pathology, which are normally characterized by the predominance of tissue respiration.

With residual defects, there is a tendency to increase signs of tissue hypoxia, which is confirmed by a decrease in the activity of enzymes of all metabolic cycles that we studied. Microcirculatory disorders are also increasing, which cause a deterioration in the supply of oxygen to the tissue, an increase in tissue hypoxia, which stimulates the proliferation and high functional activity of fibroblasts, which leads to fibrosis of the mucous membrane and a deterioration in the processes of regeneration and postoperative wound healing. The mechanism of these disorders may be due to increased trophic changes in connection with surgical intervention of the soft palate.

With secondary defects of the hard palate, there is a significant decrease in the energy processes of all studied cycles, both in the epithelium and in the cellular connective tissue elements. This is combined with the progression of dystrophic and destructive changes in the integumentary epithelium, signs of acantho. The lamina propria of the mucous membrane is sclerotically changed and compacted.

Microvessels are sandwiched between collagen fibers, the walls of many of them are thickened and sclerotic. In general, this indicates an aggravation of trophic disorders in the tissues of the palate with secondary defects and increased signs of tissue hypoxia, which requires therapeutic correction.

Children with ADHD are often ill children, mainly in the first year of life (65%), with a peculiar predominance of gram-negative microflora in the oral cavity. A favorable course of the postoperative period is possible if the operation is performed early on days 3-8 and discharged on days 14-21 of hospitalization. To prevent the development of complications, it is recommended to conduct a microbiological examination, a general blood test and early examination before admission or in the first days of hospitalization.

American experts J.F. share the same opinion. Sosso et al. (2010), who in a comparative study of differences in the microbial environment in children with a cleft of the hard palate and in children with a cleft upper lip to determine changes that occur in the microbial flora before and after surgery to restore the hard palate and upper lip, showed that patients with cleft palate had a significantly higher incidence of colonization with staphylococci, but not with methicillin-resistant Staph. aureus ($p=0.0298$; chisquare test). 3a- closure of the cleft of the hard palate coincided with a significant decrease in the prevalence of bacteria of the genera Klebsiella and Enterobacter ($p < 0.05$; McNemar test). The authors find that, despite the high prevalence of significant pathogenic and intestinal flora after surgery in primary palate reconstruction, wound infection after operations rarely occur during projective study of a population. However, the presence of B-hemolytic streptococci was associated with a higher risk of wound dehiscence during surgical treatment; therefore, they consider routine screening for streptococci before surgery to be justified. The success of treating this category of sick children in practice will largely depend on the above conditions of examination and treatment.

For the surgeon, an important aspect when performing a successful operation is the presence of normal microflora of the pharynx cavity. Often, a flawlessly performed operation can cause complications as a result of the proliferation of pathogenic microflora or the development of respiratory diseases in the postoperative period. The success of antibacterial treatment is directly related to the timely identification of the microflora of the child's oral cavity, which makes it possible to prescribe an etiotropic antibiotic. According to various authors, the qualitative composition and quantity of microflora taken from the cleft is dominated by Candida spp. (74.7%). E. coli (12.7%), Klebsiella spp. (18.7%). In this situation, an initially incorrectly chosen antibiotic may cause further therapy to be ineffective. prescribing repeated courses of therapy, which will significantly increase not only the number of bed days, but also the cost of the entire treatment in practice will largely depend on the above conditions of examination and treatment. That is why in recent years much attention has been paid to the rational choice of antibacterial agents, which does not imply the novelty of the drug, but the timely prescription of etiotropic therapy, taking into account the bacterial agent obtained during microbiological research.

In children with cleft lip and palate, the fact of repeated hospitalization and the possibility of the formation of stable hospital microflora in different hospitals should also be taken into account. In addition, the choice of antibiotics, especially in children in the first months and first two years of life, is limited due to the toxicity of many drugs (aminoglycosides, chloramphenicode, sulfonamides, ceftriaxone, fluoroquinolones). Antibacterial drugs used in children. should not only be highly effective, but also have a minimal risk of developing dysbacteriosis, toxic and allergic reactions.

A promising direction in the complex treatment of oral pathology is the use of bacterial preparations, the active principles of which are strains of representatives of normal microflora with high antagonistic, enzymatic and immunostimulating properties.

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