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**THE IMPORTANCE OF THE PREVENTION AND TREATMENT
OF DENTAL CARIES IN CHILDREN USING AN ANTI-CARIES
COMPREHENSIVE PROGRAM**

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INTRODUCTION

Dental caries is the most common dental disease among children. According to many authors, caries is registered in children as early as 5-6 years old and its prevalence fluctuates between 70.5% and 82.3%. And by primary school age (7-10 years), more than 90% of the child population is affected by the orphan disease. Timely diagnosis and the correct choice of treatment method for dental caries helps to reduce weakened forms of the disease, which in turn prevents the occurrence of foci of odontogenic infection.

Methods of treating dental caries suggest preparing carious cavities traditionally with the help of drills. Children experience pain and fear during the process of preparing dental caries, this treatment procedure has a negative effect on children's behavior, and develops stomatophobia in children.

The problem of dental caries in children remains relevant, which is due to its significant intensity, high prevalence, a large number of complicated pains and an urgent need for a dental assistant.

The World Health Organization (WHO) expert committee notes that only modern methods of diagnosis and treatment of dental caries are needed and there is no need to predict children with a high risk of development.

The most active period in the development of carious lesions occurs during the period when children experience active physiological development, formation and growth of the body. According to various authors, children aged 6-11 years, during the period of eruption of permanent teeth with incomplete mineralization of hard tissues and formation of the IX roots, have the highest percentage of lesions of permanent teeth.

- the feasibility of using a minimally invasive method of treating caries of permanent teeth with subsequent filling with SIT Argion Molar AC, which has a high level of bactericidal and remineralizing action due to the content of silver and

active fluoride ions, is substantiated, which is associated with prophylactic and toric caries.

- the advisability of using deep fluoridation with the drug Gluftored at the stage of caries treatment for sealing and remineralization of the carious zone, as well as the prevention of secondary caries, has been substantiated;

- When using the method of minimally invasive therapy, a decrease in the recurrence of caries and its complications in young puppies was revealed, confirming a higher level of quality of treatment (the service life of the filling increases);

- High practical results and significance of the study are confirmed by the data on the use of the ICDAS system - AI in younger and older children, providing more accurate criteria for assessing severe carious lesions of teeth and surfaces;

- Important for the practical work of pediatric dentists are proven criteria for the development and establishment of a cariogenic situation in the oral cavity, as well as an assessment of the effectiveness of the prevention and treatment of caries in permanent teeth and its relapses, at various levels of enamel caries;

CHAPTER I. Dental health of children of primary school age and factors influencing the formation of the Ego

Modern data on the development of dental caries lead to the understanding that caries is not a point, but a dynamic process that could be stopped or reversed at an early stage by seeking medical attention. For this reason, the search for new ways of treating and preventing diseases does not stop. Dental caries in young children is a serious problem for health care due to the high prevalence of diseases and the low efficiency of providing treatment and preventive measures.

The origin of dental caries in children is naturally the same as in adults. The leading factor in the development of caries is the caries-forming microflora of the lower respiratory tract, with a more thorough examination of dental caries and chronic infectious diseases, leading to an imbalance of multiple risk factors and protective factors. The main factors playing a role in the development of dental caries in childhood are the structure of the teeth of temporary attachment and saliva, carious bacteria, easily fermentable carbohydrates and the temporary factor.

In recent years, studies have emerged indicating that the state of the goiter-jaw system is considered as an indicator of somatic health. In the studies of Tretyakova O.V., Redinova T.L. (2016) . Such a daughter of vision corresponds to the ideas about the unity of the structure and functions of the human body system.

The age period from 7 to 14 years is the age period for children. During this period, permanent teeth continue to erupt and baby teeth are replaced. Roots are formed in erupted teeth. Typical problems of this period are an increase in the carious process, due to poor hygiene, children go to school and parental control weakens. According to the World Health Organization, 80% of children of this age suffer from periodontal diseases, the cause of which is poor hygiene.

The aim of Swedish researchers was to study the sociodemography of parents of 3 to 6 years old on dental health: habits, hygiene culture of goiters on children's attitudes to caries . Self- developed questionnaire and clinical examination. 243 children were observed. Parents filled out a questionnaire. He examined the

identified carious lesions of different depths (initial and manifest) by four calibrated dentists. Statistics V includes factor analysis, Cronbach's alpha and logistic regression with bivariate and multivariate analysis.

In a report at a meeting in Belgorod II International conference scientists from Nizhny Novgorod on the long-lived results of dental health of students of one of the schools of the industrial city of Nizhny Novgorod. The results of the in-school examination of children indicate a high prevalence and intensity of the main dental diseases among the child population. Dental examination revealed a fairly high incidence of caries of both temporary and permanent teeth in children. The prevalence of dental caries at the age of 6 years was 41% with an intensity of 5.04 ± 0.65 . The prevalence of caries of permanent teeth in 6 and 12-year-old schoolchildren was 61% and 80%, respectively. In the observed children, the high level of caries intensity in the age group was 0.48 ± 0.14 and 2.65 ± 0.52 , respectively. In the middle of the examined puppies, non-carious lesions of enamel were recorded in 6-year-old children in the form of spotting in 10% and hypoplasia in 14% of cases, in 12-year-old adolescents in 12% and 18% of cases, respectively. In children of 6 years of age, signs of periodontal disease in the form of bleeding gums during probing are present in 57% of 6-year-olds and 64% of 12-year-old children and are noted in the examined 1.6 and 2.1 secantax of the periodontium, respectively. The study showed that the level of dental morbidity among the examined puppies remains high and requires the need to develop integrated measures within the framework of the program to support dental health.

The authors of the study identify social and hygienic, medical and biological and environmental factors among the numerous factors influencing the incidence of dental caries. The development of the carious process in childhood is influenced by many factors of both general and local nature. Among the general factors, they highlight genetic predisposition to caries, environmental influences, including low fluoride levels in drinking water, unbalanced nutrition, extreme behavior (stress), the presence of general somatic pain and an aggravated allergological status. Among

the local factors that provoke the development of caries in the oral cavity, they highlight: unproductive oral hygiene, impaired

In children of the Tashkent region, the prevalence was within the range of $69.52 \pm 0.57 - 78.70 \pm 0.43\%$, with an intensity of $2.33 \pm 0.05 - 4.75 \pm 0.05$.

In the context of verified studies it was established that preschool children in urban and rural areas have a high level of caries morbidity, according to the structure of caries lesions are more often observed on molars, clicks and incisors were affected significantly less often, according to the lip or middle caries. The intensity indicator of the observed child suggests high nodularity in dental treatment, as well as more implementation of treatment and preventive programs for children.

Thus, scientists consider it appropriate to use the fissure-papillary index in addition to the Green-Vermillion hygiene index to assess the level of hygiene and the manifestation of risk factors for the development of caries of the occlusal surfaces of both temporary and permanent molars. Given the preventive importance of oral hygiene, it is advisable to provide children with training in preschool age by pediatric dentists and hygienists in the principles of tooth brushing and to form motivation for oral care.

Intensity and prevalence of goiter caries and inconsistency in treatment in children of younger age

Among the many tasks of modern dentistry, maximum preservation of the integrity of tooth tissues based on minimally invasive treatment is not necessary. Over the past 10 years, significant progress has been made in the implementation of a large-scale preventive program and improvement of the method of treating dental caries. However, this problem remains relevant and is actively studied not only by Uzbek and Russian students, but also by foreign students.

In the territory of the Russian Federation, that is, in the Krasnoyarsk and Omsk regions, the intensity of tooth decay at an early age is 0.3 (KPU index) with a spread of 12.2 % at the age of 1 year, and at the age of 3 years - Dental caries increases up to 10 times. 2.8 with a prevalence of 57.7 %, by the age of 6 - doubles and reaches

5.4 with a prevalence of 85.4 %, and among 12-year-old schoolchildren with a caries intensity of 2.1, the prevalence of caries of permanent teeth. yes, 61% to 96%.

High figures for caries incidence are also reported in the materials of scientists from foreign countries. Thus, the prevalence of dental caries in most of Europe reaches 95-99%, and in South and North America - 85-98% [8, p. 20]. However, the intensity of caries is subject to significant diseases. According to studies by a number of authors, an extremely high level of caries prevalence has been revealed, reaching 96% with an intensity.

According to B Subedi et al., a number of studies were conducted in Kathmandu, Nepal, to study the prevalence of dental caries in children in two age groups.

The study was conducted from December 2007 to May 2008. As a result, 313 children aged 5-6 years and 325 children aged 12-13 years were observed.

It is explained that the prevalence of dental caries in the KPU index in children aged 5-6 years is significantly higher - 69%, 3.79, while in the second age group - 53.23%, 1.6.

In Germany, Branderburg, M. Deichsel et al. determined the dependence of the level of carious lesions on ethnic characteristics and socio-economic conditions in children and adolescents, the prevalence of caries in children aged 25-35 months was 7.4% compared to the average caries - 5.3%, M. Deichsel et al.

After examining 1850 children in Shanghai, China from 2008 to 2011, a Chinese study group found that the prevalence of dental caries in children aged 5 years was unchanged at 63.47%, 64.00%, 64.89% and 64.44%, with the IUCN p-values of 2.96, 2.99, 3.23 and 3.09.

Perera P. Author Js, having examined 410 preschool children in Gampaha, Sri Lanka, found that 68.8% of the children had carious lesions, and the KPU value was 4.09. The authors determined that the prevalence of dental caries is gradually increasing, and a higher incidence is observed in girls than in boys [199, p.21].

K. Pattanaporn et al., having examined 350 children in Thailand aged 3 and 5 years, found that the prevalence of caries was: 56% of children at 3 years and 78% at 5 years, the level of CFU correlated with the attitude of mothers towards the oral health of children.

The main feature of focal demineralization of tooth enamel (primary caries) is that it is a unique form of caries that can be treated conservatively without surgical intervention and filling. In this regard, studying all the possibilities of diagnostics and increasing the effectiveness of conservative measures is an integral task in dentistry.

Omsk authors conducted a dental examination of 1,682 schoolchildren aged 7 to 12 years in order to establish the dental health of children in Omsk. In addition to oral cavity sanitation and oral hygiene training, children were prescribed a calcium-phosphate-containing gel of the "Saliva" model, developed at the Department of Pediatric Dentistry of the Omsk State Medical Academy. The following methods are used to diagnose caries and the stage of the disease: vital staining and determination of tissue electrical conductivity. The conducted study in the dynamics of demineralization foci with personal activity of the process showed the need for a differentiated approach to the treatment of children depending on the degree of caries activity.

Remote therapy is one of the pathogenetic directions of dental caries prevention. For remote therapy, the drugs of choice are fluoride preparations. At present, it is difficult to choose one or another drug for the prevention of caries in children. The dental market offers a wide range of various fluorinated drugs - fluoride, fluoride, fluorinated film, drugs for deep fluoridation of hard dental tissues. The arsenal of fluoride-containing drugs used to treat baby teeth in children will continue to grow.

Kolesova O.V. (2010). The most effective reduction in the increase in the hygienic indicator is achieved using "Enamel-sealing liquid". For the prevention and treatment of early caries of baby teeth in children aged 3-5 years with a reduced

concentration of calcium and phosphorus and oral fluid, the most effective is the use of the drug "Gluftored" (3 procedures per year with an interval of 6 months).

International indicators for monitoring dental care

According to the WHO recommendation, the dental care system for children, assessment of dental status, proposes to include monitoring of dental health, using internationally accepted criteria. International criteria allow for an objective assessment of the quality of medical and preventive care, justified and timely introduction of necessary adjustments to dental disease prevention programs, planning of material and personnel support for the industry. At the initiative of the WHO and the European Commission on Health, a working group of experts in the field of dentistry for monitoring the health of the population of Europe recommended 40 indicators (WHO, 1980). They include subjective (opinion of users of dental services) and objective (data from professional dental research) criteria (EGOHID -2005, EGOHID - II , EGOHID , 2008 — European Global Programme for the Development of Dental Health Indicators. Subjective criteria include self-assessment of the health and condition of one's teeth, adherence to a correct regimen of brushing teeth and limiting the consumption of sweet foods, as well as cases of toothache.

It has been proven that dental caries develops over a long period of time and goes through several stages before the formation of a strip. A very important point is the fact that the formation of a carious zone can stop the progression of carious lesions, as well as reverse its development. In addition, new carious lesions can also occur near the restorations you have tested, which can negatively affect the patient's satisfaction with the treatment provided. At the same time, areas of subsurface enamel demineralization can be successfully detected using modern methods of early diagnosis and achieve remineralization of the initial caries. In this way, it is possible to control the carious process and prevent the appearance of a carious zone. The method of caries visualization based on digital transillumination of optical fibers (DiagnoCam, KaVo) allows you to visualize primary carious lesions, secondary

caries, approximate caries, cracks and the surface of tooth enamel on the monitor screen in real time. The method allows you to get a color image that is displayed in real time on the monitor screen and clearly demonstrates the patient's condition. In addition, with the help of software it is possible to calculate the area of damage, the degree of demineralization and depth, which allows to observe and evaluate the success of the provided remineralization over time. Thus, work with the latest diagnostic devices will allow the practitioner to change the fundamental approach to the treatment of caries without preparation and filling with the preservation of the tooth's own hard body tissues. Modern technologies undoubtedly provide great opportunities for the manifestation and assessment of carious lesions at the earliest stages and allow timely treatment using non-invasive methods of caries treatment.

The Global European Program for the Development of Dental Health Indicators (the international EGOHID system), which includes a set of objective and subjective criteria for diagnosing dental status and risk factors for primary dental diseases. The use of new objective indicators such as the SiC index, "number of permanent teeth", "need and prevention" and their combination with subjective indicators ("independent teeth", "dental lump", "visit to the dentist") made it possible to identify factors that directly or indirectly affect large differences in the dental status of older children in the studied areas.

Foreign authors widely use the international ICDAS system for detailed direct diagnostics and immediate treatment of caries.

To assess the depth and extent of dental caries lesions using ICDAS and comparison with radiological methods. A total of 84 extracted teeth were examined. Visual inspection of the occlusal surface was performed according to ICDAS II criteria using the ICDAS e-learning program. The specimens were fixed in formalin and filled with a single-component SITS based on soma methacrylate. Longitudinal sections were stained with rhodamine B, fuchsin and acetic solution of light green dye to assess the depth of caries under the influence of light. The correlation coefficient between the ICDAS II assessment and the histological assessment is

0.890, and the correlation coefficient between the radiological assessment is 0.658 and 0.661. The occurrence of deep dentin lesions, the mean value of 0.940 (ICDAS II) and 0.845 (radiology), showed a high predisposition and association with the development of caries. The following studies show the high informativeness of the ICDAS II criteria in the examination of permanent teeth, especially in the detection of caries-affected dentin. Thus, the ICDAS assessment provides the possibility of reducing the radiographic detection of patients for the detection and treatment of caries.

The correlation coefficient is 0.9696. The Student's t-test coefficient was 7.93, indicating a significance of $r = 0.0014$. The F test for all models was 62.86, indicating a value of $r = 0.0013$. The results showed a statistically significant linear correlation between the percentage of poterfluorescence and deep enamel demineralization. The quantitative light-induced fluorescence (QLF) method is widely used to detect tooth demineralization. It manifests itself as the potency of fluorescence sound relative to the enamel of the tooth affected by caries.

However, according to the author's publication, the correlation between ceramic fluorescence and deep demineralization is not the same.

The diagnostic criteria of DIAGNOdent and QLF allow different types of baseline ICDAS before and after sealant placement. At 12 months, no significant change in ICDAS was observed, a small evidence of a slight increase was observed at 24 and 44 months (14% and 14%, respectively) with only 2% ICDAS ≥ 5 . In addition, radiographic caries progression (at 12 months = 1%, 24 months = 3%, 44 months = 9%). The sealant retention rate was excellent at 12 months = 89%, 24 months = 78%, and 44 months = 70%. The small risk of sealant placement significantly increases the quality of baseline ICDAS, DIAGNOdent and significantly increases the QLF. However, regardless of the severity of the lesion, the use of sealants was 100% effective at 12 months (98% effective at 44 months on occlusal surfaces according to ICDAS 0-4 (i.e. only 4 of 228 teeth progressing to ICDAS ≥ 5) with the use of sealants required treatment). This study showed that

occlusal surfaces without open cavitation (ICDAS 0-4) sealed with a clear sealant can be monitored using ICDAS, QLF or DIAGNOdent criteria can help in predicting the need for treatment with a clear sealant.

Jiang S. (2016) . Since the 1900s, dental caries has been traditionally treated by cavitational stages, and the treatment is often surgical. The detection method of early carious lesions has attracted considerable attention from researchers over the past 20 years. The most common method for detecting dental caries is visual-tactile. Other non-invasive methods for detecting early caries, such as quantitative light-induced fluorescence (QLF), DIAGNOdent (DD), fiber optic illumination (FOTI), and electrical conductivity (EC), have been developed and studied. Based on previous systematic reviews, the diagnosis of NCCLS can be clearly superior to the visual method and such methods as electrical methods and QLF for monitoring purposes.

The effectiveness of various methods of preventing dental caries and its weakening

Due to the high prevalence of initial caries until the remaining time of searching for new means that allow to lead to the reverse prevalence to a constant time, allowing to lead to the reverse spread of the enamel demineralization process. This opportunity is provided due to the preservation of the protein matrix of enamel. The duration of traditional remineralizing therapy of primary caries and the result observed in all cases are the frequency of application of this method. The method of caries penetration allows in most cases to obtain a result without preparation.

The effectiveness of traditional therapy of primary caries is extremely low. For complete remineralization of enamel, a long period of contact of remineralizing substances with enamel is necessary, since calcium ions and other microelements penetrate into enamel due to a slow diffusion process. The favorable results of remineralizing therapy are quite labile and easily regress after demineralization. Therefore, remineralization processes must be constantly supported by stimulating

the remineralizing properties of oral fluid. In addition to local remineralizing therapy, the best effect is achieved with systemic administration of calcium and fluoride preparations.

One of the modern preparations for the treatment and prevention of initial caries is the gel "ROCS Medical Minerals". It contains calcium glycerophosphate, magnesium chloride and xylitol. Thanks to a special additive, the gel has adhesive properties, has a good effect on the surface of the teeth, the mineral components of the tooth are absorbed by the teeth.

For individual treatment, caries prevention, prognosis of disease manifestation and child's age are of great importance. The author from Kemerovo has developed his own method of prognosticating dental caries in children aged 8-11 years depending on the highest values of oral cavity organs condition indicators. 132 children aged 8-11 years, workers, etc. Kemerovo were organized, the following were determined: caries activity level according to Nedoseko V.B., enamel acidity level, enamel remineralization rate, saliva mineralizing potential, calcium and phosphorus content in saliva. These works were performed using discriminant analysis. The most important factors in determining the caries activity level in children aged 8-11 years are: enamel acid resistance level, enamel remineralization rate, saliva mineralizing potential, calcium and phosphorus content in saliva and the child's ethnic season. The developed method of prognosticating dental caries in children is efficient and shows a high percentage of correct classification (above 68%).

Thus, a powerful arsenal of means for remineralizing therapy of initial caries is used. To achieve the effect, a larger number of procedures is required, which is not always feasible in modern conditions. The proposed new method of caries infiltration allows for "preserving" the carious process in one visit, while maintaining a pseudo-intact layer of enamel, which brings this method to a leading position.

New technologies and treatment of dental caries

The main advantage of the modern method is shooting with a drilling machine, as well as the ability to remove damaged tissue without affecting the healthy part of the body. So, the treatment of carious lesions without drilling is based on various principles of action. Among the most common methods and the latest technologies in the dental industry are infiltration, ozone treatment of caries, air-abrasive treatment and laser treatment of caries. The penetration technology was invented at the Celtic University of Germany. The method of microinvasive treatment of caries refers to chemical-mechanical treatment, completely excludes the drug - drilling of the tooth. Microinvasive treatment is used only for initial caries, initial carious lesions, after using braces, and caries in the spot stage. The main method of action is to apply a special gel to the surface of the affected area of the tooth that dissolves the enamel, then the carious lesion is dried with 99% ethyl alcohol, mixed with air flow and impregnated with polymer resin. The main positive aspects of this technology are painless and fast (the procedure takes 15-20 minutes) removal of only the damaged part. The lack of data in the methodology is that the method is applied only on the smooth surface of the teeth or between them, so the carious hole must be ideal - with smooth edges and a wide entrance.

Conducted international studies confirm the effectiveness of the infiltration method, which has made it possible to stop the development of caries for many years in both mature patients and children.

A French study analyses 20 years of minimally invasive dental caries treatments that can provide effective restoration and preventive care.

In Germany, a method of ozone therapy of caries was developed. The main distinctive feature of modern methods of treating primary caries is that ozone suppresses bacteria that cause caries and tooth decay, and the method of subsequent remineralization of teeth is the most effective. The ozone therapy method does not involve drilling teeth and excludes the use of anesthesia, and in non-salt cases, it is

possible to do without fillings. For ozone therapy, a special device is used that converts oxygen and ozone, instantly neutralizes caries, destroys harmful bacteria, and prevents the destruction of tooth tissue. At the end of the treatment, ozone is released from the tooth and is again formed in oxygen. One of the main advantages of the method is that the tissues remain completely intact, they are more resistant to oxidation and can withstand the effects of ozone. Ozone therapy treatment is completed in 20-40 seconds.

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Kuzminskaya O.Yu., Rutkovskaya L.V. 2016. An examination and treatment of 42 permanent teeth in 28 primary school children is conducted. The children participating in the study tested the strax before preparing the drill. Hand instruments were used for necrectomy in nix. Classic glass ionomer cements were used as a filling material. High efficiency of minimally invasive therapy of caries in permanent teeth and children is shown.

Modern dentistry, with the advent of new materials and means for treating caries, has moved to a new level of development, treating caries as slowly as possible, with minimal invasion, and preserving as much healthy dental tissue as possible.

The principle of minimally invasive intervention in dentistry, proposed in the early 90s, was approved and recommended for widespread practical implementation at the international congress of the PII in 2002.

The main value of the minimal intervention method in dentistry is the minimal surgical intervention into the tooth tissue followed by filling with special materials.

Restoration of defects in hard dental tissues will properly compensate for the anatomical tissue deficiency and further help protect dental tissues from secondary caries.

Minimally invasive technique is based on preparation of carious cavities and removal of destroyed tissues. Minimally invasive techniques allow to preserve tooth tissues as much as possible with subsequent restoration of teeth using composite materials and adhesive technology. Researches of Ogushi and Fusyama, who studied microstructure of carious dentin, using scanning electron microscopy, showed that affected dentin consists of two layers: external carious, and which is irreversibly denatured, not subject to recalcification, anemic, sensitive and main. The most developed indicator of caries: 0.5% solution of basic fuchsin, coloring a sufficiently sharp granitizing layer of external carious dentin. Fusyama proposed a new, pathoanatomical principle of preparation of carious zone, consisting of complete removal of only the external layer of carious dentin. The criterion for correctness is visual control of the wall surface coloring, 10-15 seconds after treatment, caries indicator.

In children, the principle of minimally invasive intervention is the optimal method for treating caries in permanent, immature teeth.

Preparation of permanent immature teeth according to the minimally invasive concept involves arbitrary formation of the carious zone with maximum preservation of hard dental tissues, especially the immune zone, removal of only infected dentin, leaving a demineralized "iatronate" layer. Some authors recommend postponing the use of adhesive filling techniques in permanent teeth whose formation is not complete, or in pacitites with active (acute) caries.

The process of filling, and, accordingly, conceptual minimally invasive therapy, includes only the restoration of the anatomical shape of the tooth and the

prevention of secondary caries. Due to the emergence of new filling materials, there is a need for a minimally invasive treatment method.

The effectiveness of treatment results is greatly influenced by the identification and control of caries risk factors and periodic monitoring of the quality of restoration.

The main condition for the use of minimally invasive intervention is the control of risk factors for the development of dental caries in children, active caries prevention procedures. In minimally invasive interventions, prevention includes self-detection and removal of plaque, active remineralization of tooth tissues, preventive measures. (application of fluoridation, brushing teeth with fluoride paste). And only after this, together with the patient, a treatment plan should be drawn up and carried out using minimally invasive methods. After filling, the patient will be offered to periodically undergo a proxiudit for professional teeth cleaning and the use of fluoride preparations.

As noted above, the introduction of this method of therapy into practice allows us to identify and seal carious stripes at the very earliest stages.

Minimally invasive therapy is undoubtedly a very interesting, promising method that deserves close attention from dentists. However, in the outside world and in practice, it should be known and seen that the concept of minimally invasive therapy is focused on active bilateral cooperation between the doctor and the patient. The patient needs a thorough individual hygiene visit and regular visits to the dentist for dynamic monitoring and control, as well as preventive procedures (professional teeth cleaning, use of remineralizing agents).

Features of the application of modern methods of treatment and prevention of dental caries in children of young age

Currently, there are many works on caries prevention. Despite the fact that a lot of positive experience has been accumulated in the implementation of preventive measures, the level of dental morbidity, according to VAZ, is not reduced. The

relevance of developing prevention methods is also associated with a decrease in the volume of treatment measures and, as a consequence, material costs, since the cost of preventive methods is 20 times lower than the cost of treating the most developed diseases.

The topic of caries prevention in children is open and multifaceted, domestic and foreign experts on children's dental diseases in literature raise many questions devoted to this topic. Advanced technologies give a new round of development of children's dentistry. The health of the child's teeth and the child's well-being depend on this.

It is possible to search for and find many reasons for the insufficient effectiveness of programs for the prevention and treatment of caries and children. The opinion about insufficient funding of preventive measures and the dismissal of dental hygienists is especially popular. And many agree with this position. And yet, a significant improvement in the dental health of children in mongix stranax testifies to the effectiveness of preventive measures.

In their study, Japanese author Hariri I, and Dr. (2016) conducted a study of glass ionomer Clinpro XT Varnish, CXT and a two-step self-etching adhesive (Clearfil SE Protect, SEP), comparing the results of 5000 enamels after treatment and obtained positive results in favor of Clinpro.

Today's glass ionomer cement market offers a wide range of both domestic and imported materials. The purchase of the latter requires considerable financial costs, while modern domestic glass ionomer cements are significantly cheaper and are not inferior to foreign analogues in their main indicators and properties.

Significant variability and inconstancy of the frequency of fissure caries are associated with the diversity of ix shape, depth and size. According to Stepanova T.S., Doctor. (2015). Depending on the shape, cracks are divided into open and closed. The most unfavorable version of a closed crack is flask-shaped or ampulla-shaped. Of particular importance in the development of caries are the same flask-shaped expansions and bay-shaped protrusions on the walls of the fissure.

Results of a study of the physical properties of two recently released glass ionomer (RMGI) lubricants by US researchers and a comparison of the results with traditional materials Nexus RMGI, UltraCem, GC Fuji Cem 2 and RelyX Luting Plus are manufactured using a standardized mold to determine flexural strength and fracture severity according to the manufacturer's recommendations and were stored in physiological phosphate-buffered saline at 37°C.

Korean researchers Son S., Yi K., Son H.H., Chang J. (2012) conducted a study to evaluate the effect of personal desensitizing factors on the prevention of corneal caries when applied to the root surface. As desensitizers using a desensitizer (VX, Clinpro™ XT) Varnish, SP, Seal & Protect®, Clearfil™ showed positive results in less than 60 days, concluding that desensitizers based on F resin protected exposed surfaces of horses from demineralization

Modern materials such as glass ionomer cements (GIC) are used to fill carious cavities. Nanocomposites with modern adhesive technologies (self-etching adhesive systems) are used to fill carious striped permanent teeth.

Zapadaeva S.V. in her condition tells about the possibilities of dispensary observation and treatment of 75 patients with initial and superficial caries. Coating with "Emallivid" was carried out twice with an interval of 2-3 weeks, follow-up appointments were prescribed after a year. The results of the tested treatment are satisfactory. In 62 children (82%), the process of enamel demineralization stopped. In 3 cases (4%), positive dynamics was observed, which is associated with non-compliance with hygiene policies and non-compliance with the recommendations of the dentist. For 10 people, a group follows, no return, no return. Analyzing the obtained data, the author recommends using "Enamel-and-dentin-filling liquid" in the practice of dentists, devotes much time to caries prevention.

The aim of the study by Chinese scientists was to use 38% silver diamine fluoride (SDF) for the treatment of secondary caries in glass ionomer (GIC) and composite resin (CR) restorations.

For the purpose of the study, six selected premolars and four carious cavities ($4 \times 2 \times 2$ mm (3)) were used, which were divided into two groups: Group 1 - conditioning of SDF and restoration of the GIT; Group 2 - restoration of the GIT. Group 3 - conditioning of SDF and restoration of the PR. After thermocycling, the teeth were impregnated with *Lactobacillus acidophilus* during SDF ($P = 0.062$) no interaction was found or OLD was found only in groups 3 and 4. Conditioning with 38% can increase the resistance of the restoration of GIC and PR in the treatment of secondary caries [180, p . 43].

A group of scientists from Saratov studied the use of enamel-sealing liquid for the prevention and treatment of dental caries and hyperesthesia. After deep fluoridation, as a result of the remineralizing effect of the enamel-sealing liquid, in most cases, stabilization of the so-called chalky spots on the enamel surface is observed. The use of this drug for the treatment of dental hyperesthesia that occurred after bleaching is also highly effective.

CHAPTER II . MATERIAL I RESEARCH METHOD

In accordance with the purpose and objectives of the work, dental examination, treatment and dynamic observation of 405 children of primary school age of school No. 42 of Shaykhantaur district of Tashkent city were carried out. The age of children from 6 to 11 years. This age period was chosen because it is the same for carious tooth loss and the period of caries of permanent teeth, caries, biochemical age of enamel and formation of roots.

During the examination, all children were practically healthy and were not registered with family specialists. The examination of children was carried out using a standard set of dental instruments under artificial lighting.

During the examination, the following generally accepted follow-up activities were followed: external examination, examination of the functional maxillofacial area, examination of the gums and periodontal mucosa, examination of the structure

of periodontal tissues, assessment of the distribution of teeth, dental arches and bite, assessment of oral hygiene, and examination of the hard tissues of the teeth.

Methods of dental research

For the same and objective interpretation of the applied criteria of sharp teeth defects in the oral cavity in children, the study was conducted only by one researcher - a PhD candidate in the same conditions - a dental office of the polyclinic of children's therapeutic dentistry of the TMA and in a school dental office.

For the observed schoolchild, the form "Medical record of a dental patient" - form No. 267, also a specially developed card for dental records and medical examination of observed children. During the examination, the following methods are used: clinical, radiological, microbiological, clinical laboratory, clinical functional methods.

Clinical and epidemiological research methods

In addition to the main clinical and laboratory methods of research, all autocollections for observation and treatment were studied in 405 children: the spread, intensity, and increase in the intensity of caries. And this group of children was also determined by the state of oral hygiene and the knowledge of schoolchildren, parents, and teachers of methods of proper oral hygiene.

The preparatory work and the corresponding organizational measures provided the opportunity to clearly conduct dental examinations in minimal periods. The data of mass dental examinations were entered into the "Individual Dental Examination Card".

Examination of the oral cavity organs in primary school children was carried out using generally accepted clinical methods.

The condition of the teeth in the child's oral cavity was studied from the upper jaw from right to left, on the lower jaw from left to right. The general condition of

the teeth was studied: the absence of caries, intact teeth, carious lesions, including various forms of caries with complications and without nix.

Caries diagnostics are based on anamnesis, clinical examination, zoning, and percussion. Additional methods for diagnosing focal demineralization of enamel include staining of spots with a 2% aqueous solution of methylene blue using the method of L.A. Barkhatny. The term "focal demineralization of enamel" refers to the primary manifestation of caries - caries and stages of caries. In this case, single and multiple spots are observed on the surface of the tooth enamel.

A distinction is made between white uniform spots, which are usually sharply defined, and non-regenerative spots, where chalky areas are mixed with healthy enamel.

The sizes of the spots ranged from exact sizes to taking up 1/3 of the tooth surface. According to the nature of the surface, spots with a shiny smooth surface and matte rough spots were distinguished. In a number of cases, a decrease in the density of enamel in the area of focal demineralization was detected; the enamel is easily scratched by an excavator.

In difficult cases of caries diagnostics and white spot stages, we used the method of drying the examined surface of the tooth crown. When drying the tooth surface, the affected areas became quite white. All spots related to focal demineralization of enamel were stained with a 2% aqueous solution of methylene blue.

Determination of the state of hardness of dental tissues - focal demineralization of enamel

The examination was performed using a set of dental instruments. During the selection, individuals with focal demineralization were excluded. It was detected using 2% methylene blue.

For intravital staining, a 2% aqueous solution of methylene blue is used. The tooth surface is cleaned of plaque with a toothbrush and paste or powder. Then, with a cotton swab moistened with water peroxide, the plaque is carefully removed and

the tooth surface is dried with a gauze napkin using a stream of warm air. The teeth are isolated from saliva with cotton swabs. A dye solution is applied to the examined tooth surfaces with a small cotton swab for 2-3 minutes. The swabs are removed, the rot is rinsed with water.

Demineralized areas are colored with different intensity. Color correction is performed using a standard 10-point gradation halftone scale with different shades of blue: from dark blue (100% of the accepted value) to light blue (0).

The presence of carious teeth and fillings, the number of missing teeth were noted, the cost of a tooth is determined by the dental formula. Diagnosis of dental caries is carried out on the basis of anamnesis data, visual examination, probing and percussion. Additional observation methods were also used: thermometric, radiological, determination of GI and RMA indices.

Diagnosis of caries and calculation of its intensity

The incidence of dental caries was determined by the presence of a carious zone and the number of filled and removed teeth - KPU/kp.

Caries diagnostics is based on the identified clinical signs of the presence of a carious cavity, taking into account deep lesions of hard dental tissues. During a dental examination, the following indicators were used to determine the outcome of caries: intensity and increase in intensity - according to the WHO nomenclature.

The intensity determines the degree of destruction of teeth by caries, expressed as the average number of affected teeth (caries - K, k.; filled - P, p.; removed (R) or subject to removal - R, r.); per person (KPU/kp index).

In the permanent bite, the KPUz (teeth) index was calculated. The method used shows the KPU/kp by its constituent elements, based on verified examinations of the KPU/kp for a selected group of examined individuals. Studying the constituent elements of the KPU/KP index provides more accurate and informative information about the actual state of the teeth and the level of organization of dental care.

The increase in caries intensity was assessed as the intensity of occurrence of new dental caries lesions per one examined person over a certain observation period (over 2 years). This indicator was calculated in absolute values and fixed values and in the "Individual Dental Examination Cards" separately.

Since the characteristic of caries intensity is more accurately determined based not only on the number of carious teeth, but also on the number of surfaces affected by caries, the KPU_p index (surfaces) was studied in all subjects in dynamics, i.e. for 2 calendar years. The increase in caries intensity by this indicator was determined annually for 2 years.

International Primary Caries Detection System (ICDAS) II)

The First International System of Visualization and Assessment of Caries (International Caries Detection and Assessment System , ICDAS ICDAS , based on visual assessment of the severity of carious lesions on the high surfaces of teeth, was introduced at a conference in Dundee, Scotland in 2002. The ICDAS system II was developed and supplemented at a meeting of the working group in Baltimore (USA) in 2005. [65,89,90,105,148]. Analysis of the state of hardness of dental tissues using the international ICDAS system It allows to detect not only the presence of caries, but also focal demineralization of enamel, and also to determine the severity of carious lesions. And as a result of a thorough analysis of all teeth, the skin surface was assessed using a two-digit code. The criteria for the code are as follows:

- 0 – healthy enamel (light transparent enamel);
- 1 – the first visible change in tooth enamel (white or pigmented spots of demineralization can be detected on the surface of the enamel);
- 2 – sharp visual changes in enamel (damage to the integrity of the enamel);
- 3 – localized destruction of enamel (caries lesion of the enamel predella and upper layers of dentin, carious cavity filled with softened light and pigmented dentin);

4 – carious layer and enamel and dentin (the enamel surface is light and pigmented; when probing, the enamel may be dense and show through with softened light and pigmented dentin);

5 – a clear carious layer, with visible softened dentin replenishing the carious layer;

6 – a carious cavity filled with softened dentin with destruction of the tooth crown and erosion of the tooth pulp and an inflammatory process.

The condition of the teeth (teeth) or surfaces (surfaces) is recorded by codes t / s . The presence/absence of sealants, fillings, restorations, crowns (there is a result of proven treatment) is recorded by code f (filling , filling). The severity of carious lesions is recorded by code d (decay , destruction). Teeth removed as a result of complications of the carious process are recorded by code m (missing , removed). The assessment of all tooth surfaces with code 0 (ICDAS = 0) corresponds to an intact tooth. Codes 1,2,3 characterize carious lesions of the tooth/surface and enamel predellas - index d₁₋₃. t / s . Codes 4,5,6 are characterized by carious lesions of teeth/enamel and dentin surfaces, which is expressed by index d₄₋₆. t / s .

ICDAS - II system allows for a more accurate assessment of the condition of hard dental tissues, so that only carious areas are affected, as well as primary carious lesions characterized by demineralization of hard dental tissues, without the formation of carious areas in enamel and dentin, which is especially important for detailed dynamic observation.

Definition of the hygiene index

G. Green and I. R. Vermillion (1964) proposed the requested oral hygiene index OHI - C (Oral Hygiene Indexes – simplified).

Based on the amount of plaque detected on the surface of the teeth, three levels of oral hygiene can be distinguished: good, satisfactory and good.

The quantitative assessment is carried out on a five-point system:

1. Painting of all surfaces – 5 points

- | | |
|---|-------------|
| 2. Staining of $\frac{3}{4}$ of the tooth crown surface | - 4 points |
| 3. Staining of $\frac{1}{2}$ of the tooth crown surface | - 3 points |
| 4. Staining of $\frac{1}{4}$ of the tooth crown surface | - 2 points. |
| 5. No staining | - 1 point. |

$$K_{cp} = \sum K_n/n$$

where K_{sr} is the general hygiene index, K_n is the hygiene index of cleaning one tooth, n is the number of teeth (normally the GI should not exceed 1).

In the group studies, oral hygiene lessons were given, including a course of teaching hygiene skills. Children on the dummy were taught how to brush their teeth using the standard method.

Clinical laboratory test

Clinical and laboratory methods of research were performed in 90 schoolchildren of all ages of children's studies. They determine in detail: the basic level of acidity, buffer capacity and microcrystallization of saliva, the level of subseedness of the oral layer of cariogenic bacteria SM and oral fluid, SA. The studies were repeated after 6, 12, 24 months after the beginning of the course of therapeutic and preventive measures. According to the results of the dynamic study, the influence of the therapeutic, caries-preventive program on the cariogenic situation in the oral cavity of young schoolchildren was assessed.

Evaluation of acidity and buffering capacity of oral fluid

The acidity and buffering capacity of oral fluid is assessed using the Dentobuff system. Stripe (Orion) Diagnostics , Finland). The research method includes the following: a standard strip soaked in acid must be placed on the pH layer of the kerhu. Oral fluid is administered to the child with a sterile disposable pipette. Then the pipette squeezes saliva onto the test strip. Depending on the acidity and buffer capacity of the liquid, the color of the test layer on the strip changes.

After 5 minutes, the color of the test strip should be compared with the color standard:

- the blue color of the pH layer corresponds to a high hydrogen index (≥ 6.0) and high buffer capacity of saliva;
- the green color of the pH layer corresponds to a low hydrogen index (≤ 4.0) and low buffer capacity of saliva;
- the yellow color of the pH layer corresponds to the average hydrogen index (4.5-5.5) and the average buffer capacity of saliva.

Determination of **streptococcus content mutans in oral fluid**

The content of SM in the oral fluid of schoolchildren was determined using the Dentocult diagnostic system. CM Strip mutans (Orion Diagnostics , Finland). The research methodology was as follows. First, the vial for selective cultivation was mixed with a disk with bacitracin for 15 minutes. For the study of SM and oral fluid, a strip with a round finisher with a wide surface and a ring was taken from the kit, then the strip was attracted and placed in a bottle with a nutrient medium.

The criteria for assessing the content of SM in saliva are as follows: a colony count exceeding 10^6 colony processing units/ml of saliva (CFU/ml) is considered high, and a high risk of developing caries is predicted; a colony count less than 10^4 CFU/ml is considered low, and a low risk of developing caries is predicted.

According to this clinical laboratory examination, the high-risk group for dental caries development included schoolchildren who had three or more caries risk markers. The risk markers include the following indicators: types of mixed saliva microcrystallization, low buffer capacity and low acidity of oral fluid (<4.5); the presence of highly pathogenic SM ($>10^4$ CFU/ml) in oral fluid;

Salivation rate (Redinova T.L., Pozdeev A.R., 1994)

When performing the research method, it is necessary to have a graduated test tube and a stopwatch. The patient's head is tilted to the chin, the mouth is slightly

opened and it is recommended not to swallow the saliva, but to allow it to flow freely into the test tube placed on the lower lip. The start and end time of saliva collection are noted (usually 5-15 minutes). The salivation rate is calculated using the formula:

$$C_c = \frac{V}{t}$$

where: S_s – salivation rate; V – volume of secreted saliva (in ml); t – saliva collection time (in minutes).

The normal rate of unstimulated salivation is considered to be $S_s = 0.31-0.6$ ml/min, hyposalivation is diagnosed at $S_s = 0.03-0.3$ ml/min, hypersecretion - at $S_s = 0.61-2.40$ ml/min.

Method for determining the viscosity of saliva (Redinova T., Pozdeev A.R., 1994)

The viscosity of saliva is measured using a 1.0 ml micropipette and a stopwatch. Calibrate the salivary micropipette with water after the initial test:

- 1) 1.0 ml of water in a vertically positioned test tube;
- 2) release the pallets and allow water to flow out of the test tube for 5 seconds;
- 3) mark the remaining water level on the label (usually 0.08 ml) and

This way, they determine how much water flows out of the tag in 5 seconds (usually 0.92 ml).

To determine the viscosity of saliva, an empty test tube is filled with the saliva being tested, then the saliva is allowed to flow out of the test tube for 5 seconds, and the volume of saliva that flows out during this time is measured.

The viscosity of saliva is calculated using the formula:

$$\frac{V_B}{V_C} = \frac{B_C}{B_B} \text{ track } B_C = \frac{V_B \cdot B_B}{V_C}$$

where: V_v is the volume of required water (ml); B_c is the volume of desired saliva (ml); B_c is the viscosity of saliva (in relative units); B_w is the viscosity of water (in relative units).

Good indicators of saliva viscosity are considered to be 1.0-4.0 relative units, unsatisfactory - 6.0-9.0 relative units.

Definition of COSPE test

To calculate the KOSRE test, the method of T.L. Redinova et al. was used.

The main clinical objective of the KOSRE test is to determine the rate of enamel remineralization. It can be used in mass preventive examinations and to summarize the results of dental caries treatment. The method is technically simple, and the results are easy to interpret.

Methodology for checking the KOSRE test. The assessment of tooth resistance to caries is carried out as follows. A ready-made acidic buffer solution with a pH of 0.3-0.6 and a 2% solution of methylene blue. The acidic buffer is a demineralizing solution. To prepare an acidic buffer solution, add 97 ml of hydrochloric acid and 50 ml of hydrochloric acid, mix and add distilled water to a volume of 200 ml. To impart viscosity, add one glass of glycerin. The resulting liquid allows you to obtain drops with a constant contact value with the goiter and better retention on the surface.

The demineralizing liquid is tinted with acidic fuchsin for better visual control; the demineralizing solution itself acquires a colored color.

The susceptibility of enamel to the impact (the process of demineralization) is assessed by the degree of intensity of staining of the etched enamel on the blue color typographic shade scale. During the study, a ten-point scale was used, i.e. the stained light polish was taken as 10%, the most saturated - as 100%.

After 24 hours, the etched area of tooth enamel was re-painted. Demineralization solution is not used for re-coating. In such cases, if the tooth enamel is stained, the procedure must be repeated after 24 hours. In the case of complete restoration, the enamel of the damaged area does not crack. The etched area of tooth enamel in patients was restored at different times. After that, some etched area of enamel lost its staining, judged or remineralizing properties of saliva.

Thus, the degree of susceptibility of tooth enamel to the action of acids (demineralization, or enamel dissolution) was taken into account in percentages, and the remineralizing capacity of saliva was determined in days.

Among caries-resistant patients, a low ability of tooth enamel to react with acids (below 40%) and a high remineralizing ability of saliva (from 1 to 3 days) are noted, whereas in caries-sensitive patients, a higher ability of tooth enamel to react with acids (40% and above) and a low remineralizing ability of saliva (more than 3 days) are noted.

Children in the observed groups undergo a standard dental examination, and the state of canal hardness is assessed using the Low Resistance Test (TER) and the mineralizing potential of saliva (MPS).

Method for determining the mineralization potential of saliva (MPS)

To perform the crystallographic study method, oral fluid collected on an empty stomach was used. Liquid volume 1 ml, nanosilicone and vacuum lid, glass, vertical and horizontal position, temperature 18-25 °C. Study of the structure of the salivary glands using an optical microscope. Results of determining the mineralization potential of saliva (MPS) by the method of P.A. Leus (1977), according to the character of the rusunka obtained on the glass.

1 point – a scattering of chaotically located structures of rock form;

2 points – thin linear necrosis across the entire field of view;

3 points - individual crystals of irregular shape and telephone sets and deep boxes;

4 points - medium-sized tree-like crystals;

5 points - clear, large, resembling a collar or carcon of crystalline structure.

The MPS values were estimated using the following show:

0-1 low open level

3.1-4.0 high

1.1-2.0 low

4.1-5 open high

2.1-3 satisfactory

MPS (Leus P.A., 1977) also provides an indication of the saturation of oral fluid with microelements.

Three types of microcrystallization of oral fluid have been identified.

Type 1 is characterized by the saturation of saliva with microelements and is presented in the form of an elongated prismatic crystalline structure, glass with radial orientation;

Type 2 – average level of saturation of saliva with microelements, depicted in the form of isometrically located fragments of crystals without sharp orientation;

Type 3 saliva oral fluid with a poor content of trace elements, looked like scattered small individual unoriented fragments of crystals.

Method for determining enamel resistance (TER)

The TER test method developed by Russian authors (Okushko V.R., Kosareva L.I., Lutskaya I.K., 1983) evaluates the resistance of tooth enamel to acid. It was performed as follows: the central incisor of the upper jaw was dried from soft dental plaque with a 1% solution of N_2O_2 using a dry cotton swab. A pipette cuts the middle of the vestibular surface for 2-3 seconds with a nanofilament with a diameter of 1.5-2.5 mm. Then the swabs with uric acid are dried and stained with a 2% solution of methylene blue, then the swabs are filled with dry water. The etched area is stained blue of varying intensity. The color intensity is assessed using a 10-point typographic color scale with a color intensity from 1.0 to 10.0 points.

At the intensity level from 1.0 to 3.0, the observed children belong to the group of high caries resistance (HCR), the level of decorativeness is 4-5 points with a moderate level (ML), the level of decorativeness is 6-7 points in relation to the low level of caries resistance (LLCR), the decorative level of more than 8 points is considered open low (OLCR) and the maximum risk of caries development is assumed.

Criteria for the effectiveness of the treatment and prophylactic anti-caries program: increasing the level of microcrystallization of oral fluid while reducing the colonization of the oral cavity with pathogenic cariogenic bacteria using *St. mutans* as an example, increasing the hygienic level of the oral cavity, demonstrating the buffer capacity and pH of the oral fluid.

Methods of treating caries of permanent teeth in children with unformed roots

Timely diagnosis and correct choice of treatment method for dental caries helps to reduce weakened forms of the disease, which in turn is the prevention of the occurrence of foci of odontogenic infection.

The methods of treatment of dental caries that have developed to date offer traditional preparation of carious cavities using drills. Children, when visiting a dentist, experience fear and pain during the preparation process, children are capricious, this affects their behavior, becomes the cause of stomatophobia, and this has been reported in a number of publications.

The issues of the specifics of treating caries in permanent teeth with incomplete mineralization of tissue hardness in the physiological period of development of children aged 6-11 years during the formation of core teeth do not lose their relevance.

In search of optimal methods of dental caries treatment, researchers and literature report new methods of treatment, maximum preservation of natural tooth tissues, as well as after the treatment procedure, filling the carious area with SIT with modern restorative composite materials. One of the new proposals of researchers is the method of minimally invasive therapy using SIT.

Among the many factors determining the remineralization of hard dental tissues is fluoride (Knappvost A., 2005). It is known that glass ionomer cements (GIC) have the maximum release of fluoride ions; scientists are actively developing

GICs with increased fluoride content. In addition, GICs provide a higher level of connection with dental tissues.

When treating teeth in children with medium and deep caries and reduced caries resistance of enamel, the method of deep fluoridation of enamel and dentin with the drug Gluftored before filling the teeth was used for remineralization. The drug, including a one-time use after treatment, is difficult to use.

How to use Gluftored: degreased carious layer, soaked with an applicator soaked in liquid for the first burr and put for 30 seconds. Air-conditioned room. After 30 seconds, the image will be loaded twice. There is also a stream of cool air.

When using the drug Gluftored, due to the high solubility of microcrystals on the surface of the teeth, high local concentrations of fluoride ions (about 100 m/l) are created. Since the rate of remineralization is proportional to the square of the concentration of fluoride ions, deep fluoridation leads to an increase in the rate of remineralization 100 times greater than other fluoride salts. When searching for a method, use other lining materials.

The deep fluoridation method is repeated 2-3 times with an interval of 1 week. The carious layer is sealed with aqueous dentin. After the end of remineralizing therapy, after 2-3 weeks, the aqueous dentin is replaced with a permanent filling SIT Argion Molar ATs.

A distinctive feature of the method is minimally invasive intervention and early diagnosis of carious disease, and minimal surgical intervention in tooth tissue.

Preparation of hard dental tissues with a minimally invasive method is carried out under the control of a caries detector. The principle of operation of the caries detector is based on the varying degree of staining of the dentin layers and the focus of carious lesion. Since the outer layer of demineralized dentin is completely destroyed and consists of a mixture of pathologically altered collagen phylocones and odontoblasts, they are stained in a bright color, the inner layer is partially demineralized and is stained much lighter, preserving the ability to remineralize. The

caries detector contains a 0.5-1.0% solution of basic fuchsin dissolved in propylene glycol.

The use of a caries detector facilitates a gentle method of removing only non-viable dental tissues and maximum preservation of dental tissues capable of remineralization, thereby ensuring maximum duration of tooth viability.

When using minimally invasive therapy methods, it is necessary to use modern filling materials that are resistant to physical stress, effective mixed saliva, with a low elasticity modulus, high adhesiveness, and good radiopacity.

These requirements are met by the SIT company VOCO Argion Molar AC, which contains brain and releases ions of active fluoride for a long time.

VOCO used in minimally invasive dental filling methods.

Argion is a stop-fixing glass ionomer filling material containing silver. The presence of finely dispersed parts of the brain has a bactericidal effect, increases not only mechanical reliability, but also guarantees high radiopaque indices (up to 400% AC). Argion is distinguished by the content of active fluoride ions, which are released constantly, preventing the formation of totic caries, as well as good chemical adhesion to dentin and tooth enamel.

To assess the quality of preservation of the filling, the method proposed by D.M. Karalnikov and A.I. Balashov (1978) was used [7,8], where 5 main criteria were used, with the first 3 criteria being used:

1. Marginal seal of the filling;
2. Secondary (recurrent) caries;
3. Violation of the anatomical shape of the filling.

Methodology for using complete "Gluftored" and delayed filling.

Developed in 2005, the dental kit "Gluftored" is used for deep fluoridation of enamel and dentin, in the prevention and treatment of primary and secondary caries, caries in the pit stage, as well as in the prevention of caries, sealing of fissures,

treatment of hypersensitive areas of the tooth, after preparation of the cavity and pulp, treatment of periodontitis.

And the dental kit "Gluflored" includes liquid and suspension. Liquid - a blue solution containing fluorine and copper ions. Suspension is a finely dispersed calcium liquid in distilled water with the addition of a stabilizer.

And as a result of subsequent alternate application of liquid and suspension, sealing of enamel microcracks, dentine canals and cement, the newly formed substance is a high-molecular polymer of silicic acid with submicroscopic crystals of calcium fluoride, magnesium fluoride and copper fluoride deposited in it. This substance is alkaline in nature and very dense, which creates effective protection of dentine and pulp from the effects of acids and monomers contained in restorative materials.

A characteristic difference of conventional fluoridation is that with deep fluoridation, microcrystalline calcium fluoride of less than 1 μm in size is formed directly in the dentinal canals and damaged enamel, which creates more effective and long-lasting protection against caries.

Microcrystalline fluoride calcification is a permanent source of fluoride ions, capable of providing long-term remineralization and reliable sealing of hard tissues. With deep fluoridation, the copper compounds involved in it create effective protection of hard dental tissues from cariogenic microorganisms. Long-term content of copper and fluoride ions in hard dental tissues helps restore the alveolar-dentine system.

Deep fluoridation does not reduce the adhesion and retention of filling materials.

Treatment of deep cavities and fleshy teeth should begin with the use of calcium hydroxide suspension. Calcium hydroxide protects the pulp from the effects of fluoride complexes that have not yet disintegrated.

Directions for use

In order to prevent caries, treat caries at the stage of the spot, remove tartar, remove dental deposits from the surface of the teeth using Polident paste No. 1 or 2 without fluoride. The surface of the tooth is washed with water, dried with a stream of air, then thoroughly moistened with an auxiliary swab "Gluftored". After 1 minute, room temperature liquid is applied to the swab, and a suspension of calcium hydroxide is applied to the treated surface and the liquid is thoroughly washed off. After 1 minute, rinse with a stream of water. The obtained result must be consolidated by repeating the procedure after 2 weeks and then repeat the treatment 1-2 times a year.

To reduce dentin sensitivity after surface preparation and pulp protection during filling with cement and composite materials, as well as to prevent recurrent caries, an auxiliary tampon "Gluftored" No. 1 is applied to a dry, unshaded surface, squeezed out for 1 minute, and then remove the remaining liquid with a dry tampon, finally the cavity is abundantly moistened with the suspension. Leave for 1 min, open the treated area with a dry clean tampon. Such treatment with "Gluftored" helps to ensure reliable protection of the pulp, makes it possible to refuse the use of material containing calcium hydroxide. After treatment with the dental material "Gluftored" 1-2-3 times with an interval of 1-2-3 weeks of delayed filling of the tooth with glass ionomer cement Argin Molar AC, it is possible to preserve the root of the tooth for 2-3 weeks. years.

The obtained data were statistically processed using Microsoft programs . Excel . The reliability of intergroup differences was assessed using the Student t - test. Statistically significant results at $r < 0.05$ (difference 95%).

CHAPTER III . OWN RESEARCH. Characteristics

Dental caries prevalence rates in primary school children

In modern dentistry, the problem of dental caries in children remains relevant, which is due to its significant intensity, high prevalence and a large number of concomitant diseases and dental assistants.

The WHO expert committee points out that only modern methods of diagnosis and treatment of dental caries are necessary, and the development of dental caries is not predicted in order to identify high risk.

The highest frequency of carious lesions occurs during the period when the child's body is being formed and growing. According to various authors, children aged 7-12 have a relatively high percentage of permanent tooth loss, and caries in children remains high.

A dental examination of 403 children aged 6-11 years was conducted. Since the age under study is the main period of eruption of permanent teeth and simultaneous formation of canines.

Children of this age period, on the part of dentists, need to pay increased attention to clothing with therapeutic measures in the preventive direction of active caries.

Assessment of the prevalence and intensity of dental caries in the ICDAS system II

The study of the cost of dental tissue hardness in children is provided for by the WHO and ICDAS II criteria. According to the WHO criteria, the prevalence of caries in children aged 7-12 years is 89.5%, the intensity of tooth decay and surface destruction is 2.63 ± 0.03 and 2.72 ± 0.02 , respectively (standardized indicators).

According to ICDAS II criteria, 3681 superficial 3513 teeth were observed, and the average surface index was 31.7 per child. It was found that the prevalence of teeth with such healthy enamel is associated with an increase in the age of children and is 6-7 years old - 82.6%, 8-9 years old - 92.7%, 11-12 years old - 91.2%.

According to ICDAS II criteria, the intensity of the primary tumor of the tooth tissue/surface ($d_{1-3 t} / d_{1-3 s}$) compared to a child aged 6-7 years was $0.43 \pm 0.01 / 0.48 \pm 0.01$; 8-9 years – $0.57 \pm 0.03 / 0.51 \pm 0.4$; 10-11 years – $0.61 \pm 0.02 / 0.52 \pm 0.013$ (Table 2). The differences between the age groups were highly significant ($P < 0.01 - 0.001$). Deep carious lesions of teeth/surfaces were observed in children aged 6-7 years, the $d_{4-6 t} / d_{4-6 s}$ index was $2.48 \pm 0.02 / 2.70 \pm$

0.04, 11-12 years - $3.75 \pm 0.04 / 3.84 \pm 0.05$ (difference between dry age groups, $P < 0.001$).

The intensity of initial manifestation of dental caries/superficial (ICDAS=1.2.3) increases with age by 1.21/1.17 times, deep caries (ICDAS=4.5.6) – by 1.51/1.42 times. The obtained data show that the growth rate of initial carious lesions in children was significantly higher than the growth rate of destructive manifestations of caries (cavities).

During the observation period, children of all ages studied had filled teeth, the intensity of filled teeth/surfaces (ft / fs) was $1.00 \pm 0.04/0.80 \pm 0.01$.

The total index $d_{1-6} \text{ mft} / d_{1-6} \text{ mfs}$ was $1.70 \pm 0.40 / 1.80 \pm 0.50$ in children aged 6-7 years, $2.12 \pm 0.07 / 2.35 \pm 0.09$ 8-9 years, $2.50 \pm 0.15 / 3.40 \pm 0.13$ 11-12 years (difference between age groups with dry skin, $P < 0.01 - 0.001$), (Table 3.1). The size index $d_{1-6} \text{ mft} / d_{1-6} \text{ mfs}$ increased from 6-7 years to 11-12 years by 1.5 / 2.05 times.

Table 3.1

Caries indicators according to ICDAS II criteria

Criteria for of dental caries ICDAS II	Intensity of ODA and dental caries by age		
	6-7	8-9	10-11
	M ± m		
d_{1-3 t}	0.43 ± 0.01	0.47 ± 0.03	0.50 ± 0.02
d_{1-3 S}	0.48 ± 0.01	0.51 ± 0.04	0.52 ± 0.03
d_{4-6 t}	2.48 ± 0.02	3.17 ± 0.70	3.75 ± 0.15
d_{4-6 S}	2.70 ± 0.04	3.24 ± 0.90	3.84 ± 1.00*
feet	0.90 ± 0.03	1.27 ± 0.15*	1.21 ± 0.22*
fs	1.00 ± 0.01	1.45 ± 0.17	1.30 ± 0.17

m	0.80 ± 0.01	0.90 ± 0.02	1.20 ± 0.40
d_{1-6 m}	1.70 ± 0.40	2.12 ± 0.07	2.50 ± 0.16*
d_{1-6 ms}	1, 8 0 ± 0, 5 0	2, 35 ± 0,0 9	3 , 47 ± 0.1 3 *
According to ICDAS II	85.03 %	91.3%	94.1

Adjacency: * - marked The reliability varies ($P < 0.05$) in relation to the age of 6-7 years.

The prevalence of dental caries in the ODO using the ICDAS II criteria was 85.03% for children aged 6-7 years, 91.3% for children aged 9-10 years, 94.1% for children aged 10-11 years, which significantly exceeds the WHO criteria (Fig. 1).

Data analysis shows that the study of dental caries and the ICDAS II school assistant increases similar traditional indicators in children of all age groups, which corresponds to: 1.02; 10.3 and 1.03 times.

When analyzing the localization of carious lesions on the surface of teeth in children aged 6-7 years, only 41.2% of all vestibular and palatal surfaces, molars, milk teeth and incisors were affected, 33.4% were occlusal, 15% were medial, 7% were distal, 9.7% were superficial.

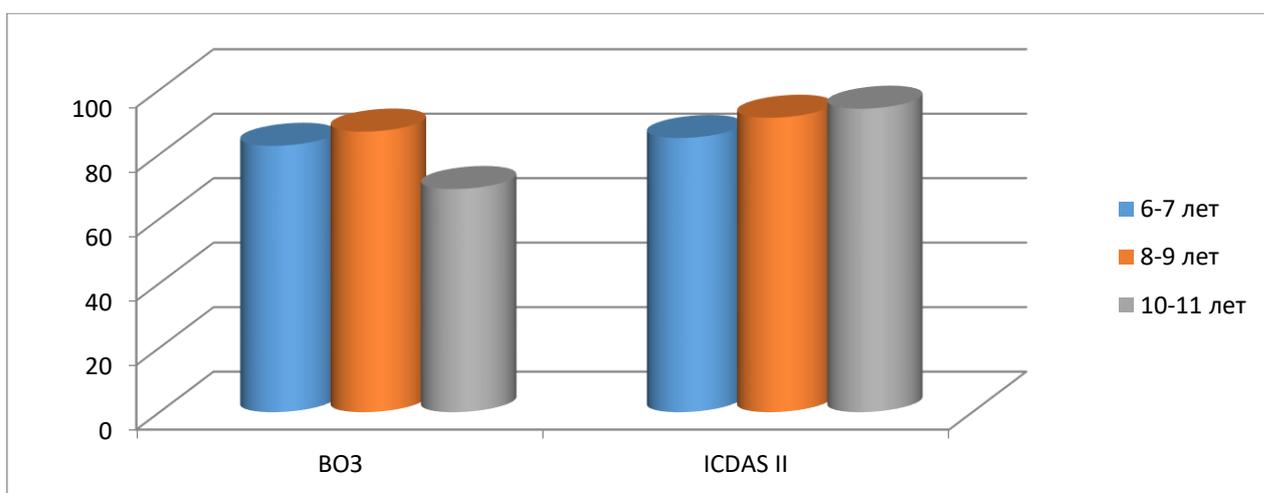


Fig. 1. Comparison of caries indicators and intensity according to WHO and ICDAS II criteria.

In permanent teeth, the molar surface is affected more than the gingival surface – by 39.1%, the vestibular surface – by 27.8%, the palatal surface – by 18.9%, the medial surface – by 14.2%, and the distal surface – by 10.0%.

Schoolchild 8-9 years old, vestibular surface of teeth - 43.4%, occlusal surface of molars - 37.3%, medial - 6.2%, palatal - 3.1%.

In the age group of 10-11 years, the main prevalence of dental caries is 59.5% non-occlusal caries, 21.2% mesial and 5.7% distal surface, 10.0% vestibular surface and 4.5% contact surface.





Fig. 2. Percentage of caries, as well as caries and age

Table 3.2

Frequency of localization of carious lesions and surfaces of permanent teeth of schoolchildren in the ICDAS II system

Old age	Criterion	Teeth surfaces				
		vestibular	occlusion	Palatine	medial	distal
		M ± m , %				
6-7	d ₁₋₃ ms	27.8 ±3.48	35.1±2.71	18.9±2.31	14.2±1.35	14.0±1.27
8-9	d ₁₋₃ ms	43.5±4.15	37.2±4.18	6.1±1.23	16.5±2.15	7.6±1.43
10-11	d ₁₋₃ ms	37.1±4.33	41.3±5.21	6.0±1.12	10.4±1.18	5.2±1.58

Analysis of the results of the data obtained showed that the frequency of localization of carious lesions Thus, at the age of 6-7 years, the localization of the frequency is more pronounced than on the vestibular and occlusal surfaces, followed by the palatal, medial and distal surfaces (Table 3.2).

In the next age group of 8-9 years, the frequency of localization of carious lesions is mainly observed on the vestibular surface of the teeth (43.5%), then on the occlusal surface (37.2%), on the medial surface (16.5%), on the palate and distal, respectively 6.1% and 7.5%.

In the third age group of 10-11 years, the frequency of localization of carious lesions is characterized by an increase in the occlusal surface of the teeth by 41.9%, in second place is the vestibular - 37.1%, medial - 10.4%, palatal - 6.0% and distal - 5.2% of the surface area.

A simple increase in the age of the schoolchildren studied reveals different frequencies of localization of carious lesions on the surface of the teeth (Table 3.2).

Primary caries (ICDAS II = d_{1,2,3}) is localized on both the vestibular and distal surfaces. Deep carious lesions (ICDAS II = d_{4,5,6}) predominate in both occlusal and medial superficial lesions.

The corresponding study of the spread of caries according to the ICDAS II criteria accurately characterizes the clinical stage of carious disease, as well as the ultimate definition of the spread and intensity of caries with the localization of the carious lesion and the surface of the hard tissue of the teeth.

According to ICDAS II criteria, the primary stage of carious lesions increases with age. The index $d_{1-3 t} / d_{1-3 s}$ increases sufficiently with the age of the child (Table 3.2).

According to the ICDAS II criteria, there is a characteristic increase in the prevalence and intensity of dental caries with age in children (Table 3.2).

Using the ICDAS II system, the localization of carious caries in the following children and the prevalence of the frequency of localization of early caries (ICDAS II = d_{1,2,3}) were determined, and superficial teeth and deep carious lesions (ICDAS II = d_{1,2,3}) on the surfaces of hard tissues of teeth were determined.

The use of the ICDAS II system allows identifying the localization of carious lesions depending on age. It was found that in children aged 6-7 years (35.1%), the occlusal and vestibular surfaces (27.8%), palatal (18.9%) are damaged, and the

frequency of damage to the medial and distal surfaces is not the same. 14.2%; 14.0%, respectively.

At the age of 8-9 years, the most common lesions were those of the vestibular and occlusal surfaces of the teeth (37.2%), medial (16.5%) and distal (7.6%), and less frequently - the palatal (6.1%).

At the age of 10-11 years, the main percentage of lesions occurs on the occlusal surface (41.3%), vestibular 37.1%, rarely (10.4%) occurs on the medial surface of the teeth, rarely (5.2% and 6.0%) the distal and medial surfaces.

In this image, the data obtained on the condition of hard dental tissues, due to the use of ICDAS II criteria, confirm and demonstrate the receipt of more accurate information characterizing the stage of damage and the process of dental caries. and the severity of the carious process. Of particular importance is information on the presence of initial carious lesions, on its prevalence and intensity, which makes it possible to timely and successfully treat with modern drugs. And also allow the dentist, when examining children of younger age, to pay more attention to examining the surface of the teeth, characterized by more frequent lesions depending on the age of the children.

Prevalence and intensity of dental caries in children of primary school age according to WHO criteria

The highest frequency of carious lesions in children occurs during the period when the body is being formed and growing. According to various authors, children aged 7-13 years have a high percentage of carious lesions in permanent teeth, which is associated with the period of active tooth destruction and root formation. WHO criteria are traditionally used to assess tooth decay, according to which teeth or surfaces with carious cavities, fillings, such teeth, and remote consequences of caries are registered.

In our studies, the intensity of dental caries was determined by the KPU index, which reflects the quantitative expression of the incidence of caries in children, on average per child.

The determination of caries intensity according to the KPU index is presented in Table 3.3.

Table 3.3

Intensity and prevalence of caries in children of primary school age.

Age of children studies	6-7 years	8-9 years old	10-11 years
KPUz	2.48±0.02	3.17±0.07	3.75±0.15*
KPUp	2.70±0.06	3.24±0.09	3.84±1.0*
Prevalence of caries	82.6%	87%	69.2%

Adjacency: * - marked The reliability varies ($P < 0.05$) in relation to the age of 6-7 years.

The data obtained show that with the increase in age of children, the intensity of dental caries and surfaces increases. Similar dynamics of change in indicators and prevalence of dental caries in young schoolchildren.

Focal demineralization of enamel (FDE) is the initial form of caries, which is diagnosed by the form of caries and the stage of caries. FDE enamel was diagnosed at all stages of caries development from subsurface carious lesions to defects in the surface of tooth enamel. Caries and stages of caries can be eliminated by a reversible process using modern technical and remineralizing agents. Therefore, diagnosis of caries and this stage is an important point for the prevention of dental caries. In children of primary school age, the initial form of caries can be detected on the vestibular-occlusal surface of incisors, premolars and molars. The prevalence and intensity of FDE tend to increase with age. (Table 3.4).

Table 3.4

Prevalence and intensity of musculoskeletal disorders in children according to WHO

Age of children studies	6-7 years	8-9 years old	10-11 years
ODEz	0.43±0.01	0.47±0.03	0.50±0.02
ODEP	0.48±0.01	0.51±0.40	0.58±0.013
Prevalence of musculoskeletal disorders	2.43%	2.61%	2.86%

Assessment of the hygienic condition of the oral cavity in children of primary school age

The leading component of dental disease prevention is oral hygiene. Mass population studies, verified in recent years in all countries of the world, have convincingly shown the importance of this manipulation. It was established that dental caries and periodontal diseases were much less common in people who regularly brushed their teeth.

As is known, an aggravating factor in the occurrence of caries is the deterioration of the hygienic condition of the oral cavity. It is no coincidence that in the prevention of dental caries, periodontal diseases and oral mucosa, the hygienic level is given a large role. Unsatisfactory oral hygiene is a risk factor for dental caries, a low level of oral hygiene in children depends to a greater extent on irregular care, as well as on the inability to properly brush teeth due to the lack of knowledge

in children about the brevity of the producers, Nosti, Skills of using a toothbrush, used hygiene products.

Despite the fact that many scientific papers and their own studies have proven the importance of the quality of the hygienic surface and the development of caries and periodontal diseases, the level of knowledge and skills of primary school children was low. The state of oral hygiene in the observed children was assessed using the Fedorova-Volodkina criteria as modified by Pakhomova.

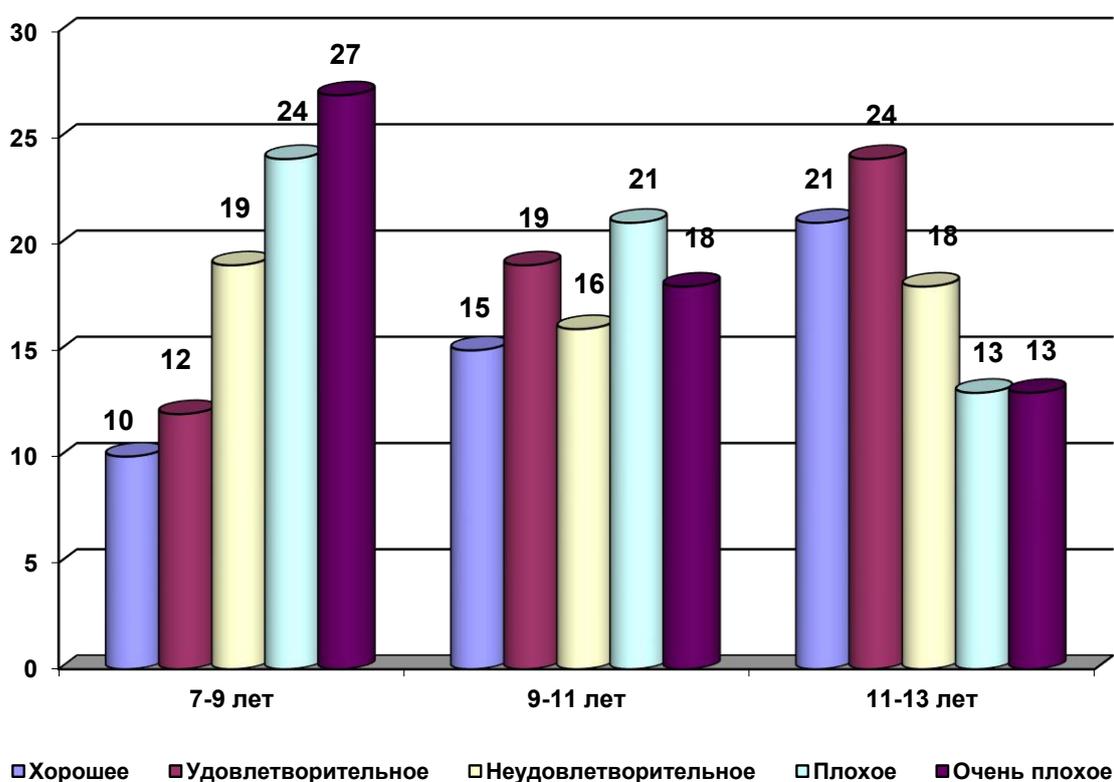


Fig. 3. Oral hygiene status in primary school children

Comparing the results of the study of the hygienic state of the oral cavity of children according to the data in Table No. 3, it follows that in most studies the level of oral hygiene was unsatisfactory, the poor and very poor indicators decreased (Fig. 3).

But it should be noted that the number of children with good and satisfactory oral hygiene has increased due to the increase in the age of children, good 21% and satisfactory -24% in children aged 11-13. According to the results of the survey and questionnaire, children showed a low level of knowledge, most children did not know about the disease (52.3%), there was a risk factor for the development of caries and the presence of anti-caries preventive measures to prevent caries. development of the disease.

The obtained results indicate a low level of hygienic values and a sufficient volume of sanitary and educational work among children of primary school age. This work must be systematically provided, which allows raising the level of hygienic knowledge, instilling the necessary skills for oral care.

WHO formulated the general principle of health education and dental education: inclusion of educational components and daily dental procedures, personnel training, participation and prevention (WHO, 1986). Health education and the issue of health protection should be composed of components of the general health education program, health education materials should be designed in such a way as to concentrate and focus attention on this problem, to ensure the acquisition of new knowledge, knowledge strengthening and knowledge acquisition.

Having established the low level of knowledge of children in oral care, conversations were held with parents of schoolchildren. And this needs to be discussed, because all parents have enough knowledge and motivation to implement hygiene policies. Moino suggests that the sanitary literacy of parents is not at a long-term level and they have low sanitary and cultural care of the oral cavity. Most students have a sufficient dental assistant who has a school and a dental office. This is also evidenced by the choice of parents of hygiene products for oral care of schoolchildren. Parents chose a toothbrush and toothpaste for brushing their children's teeth not for childhood, but focusing mainly on advertising publications, or roles in the media, or listening to the advice of familiar relatives and friends. The

above described evidence of sufficient receipt of appropriate information from specialists: dentists and pediatricians.

Parents selected oral hygiene products for schoolchildren without consulting pediatric dentists, based on a low level of knowledge.

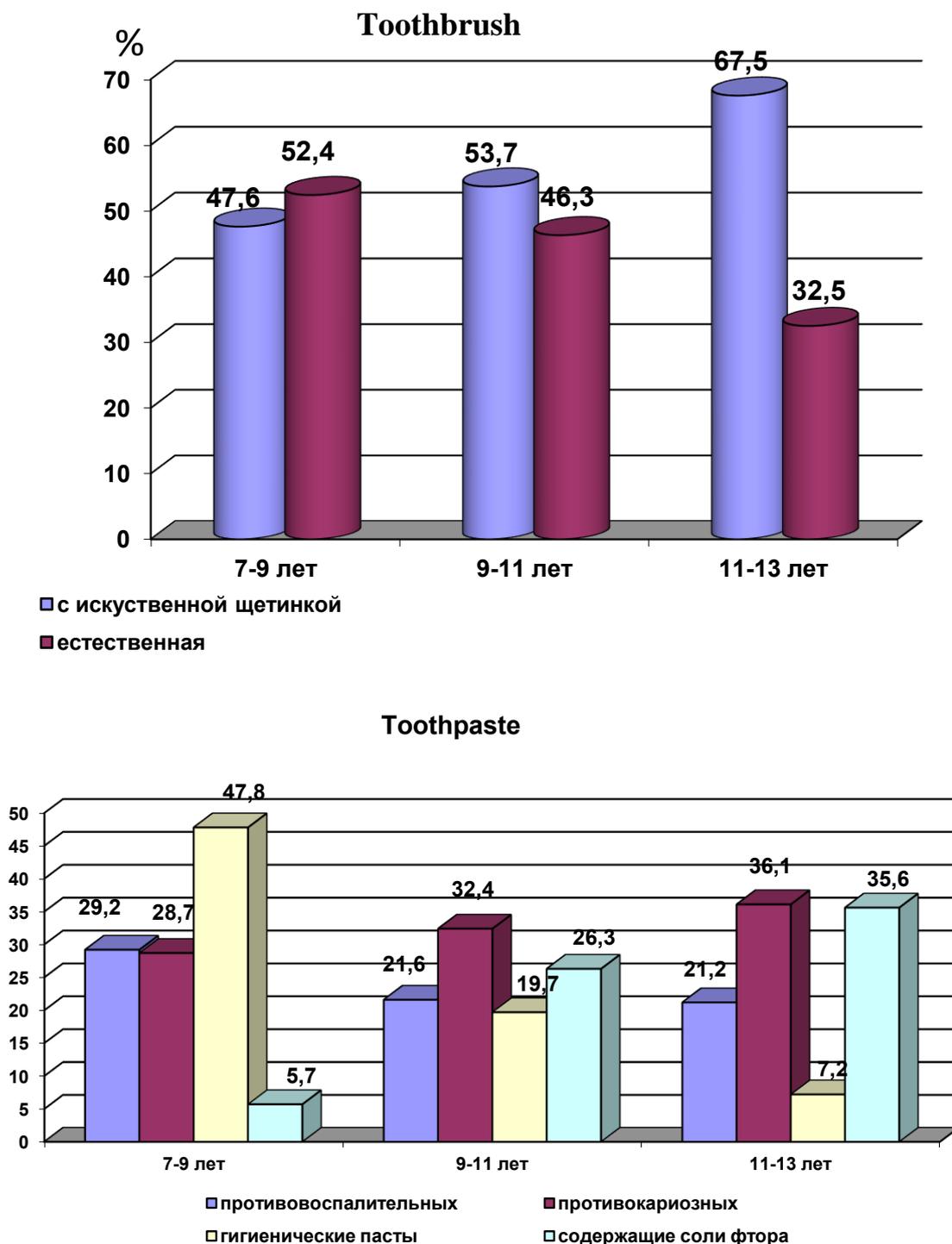


Fig. 4. Hygienic equipment for floors and schools.

Figure 4 shows that when choosing a toothbrush for schoolchildren aged 7-9 and 8-9, parents prefer to use natural toothbrushes.

At the age of 10-11 years, more than half of children (67.5%) have clean teeth, more modern toothbrushes and brushes, and a greater need for hygiene.

In 6-7-year-old school and primary school (47.8%), hygienic pastes are used. Therapeutic and prophylactic effect of toothpaste used in older children. At the age of 8-9 years, anti-inflammatory toothpastes were used in 21.6% of cases, anti-caries - in 32.4%, containing fluoride - in 26.2% of cases. As we observe the maturation of schoolchildren, the percentage of use of anti-caries and fluoride-containing toothpastes increases, respectively: 36.1%; 34.0%. Anti-inflammatory toothpastes in all 3 age groups are, basically, at the same level, however, the use of hygienic pasta decreases with the age of children (Fig. 4).

It should be noted that the use of toothpastes containing fluoride salts increased sharply with the age of schoolchildren. Most schoolchildren aged 8-9 years (32.4%) used anticaries toothpaste, followed by fluoride-containing salts (26.3%) and anti-inflammatory toothpaste in 21.6% of cases. The frequency of seeking hygienic dental care ranged from 47.8% to 19.7%.

At the age of 10-11 years, the frequency of using anti-caries agents and fluorides is low at the basic level, corresponding to 36.1% and 35.6%. Toothpastes with anti-inflammatory therapeutic effect were used by 21.2%, which is at the level of the previous age group of schoolchildren. It should be noted that there is a sharp decrease in dental hygiene by 8.2% at this age.

The survey revealed that children aged 6-7 used toothpaste and toothbrushes with all their children (60%). At the age of 8-9, 32.4% of children choose their toothpaste based on television, radio and school dentistry. More than half of schoolchildren aged 10-11 (53.7%) already have access to hygiene products.

The information received at school and the results of health education work made it possible to use consciously fluoride-containing anti-caries products.

It is known that in recent years many researchers have proven the effectiveness of fluoride in the constant presence of plaque, which ensures balance and a continuous protective process of remineralization and enamel of children's teeth. And the presence of demineralized enamel in the presence of fluorides ensures the process of catalysis of remineralization, helping to restore the surface layer of enamel and is currently the main means of preventing dental caries in children.

The obtained data indicate a sufficient level of knowledge of parents and preschoolers, methods and means for oral care, which explains the low level of oral hygiene of the children studied. At the same time, 50.3% of parents did not know about the possibility of preventing dental caries with the help of caries-preventive measures necessary for this age group. In addition, the organization of sanitary culture and sanitary culture of schools is also engaged in the implementation of information and educational programs and methods of caries prevention, programs and methods.

The low level of hygiene culture indicates insufficient awareness and broad sanitary and educational work of pediatric dentists among parents and children. Under these conditions, it is possible to predict the development of a cariogenic situation in the oral cavity of schoolchildren, leading to a high prevalence of dental caries and parotitis. Based on the data obtained, individual oral hygiene lessons and caries-preventive measures were developed for children together with their parents.

Oral fluid parameters characterizing the development of cariogenic situation and oral polyostosis

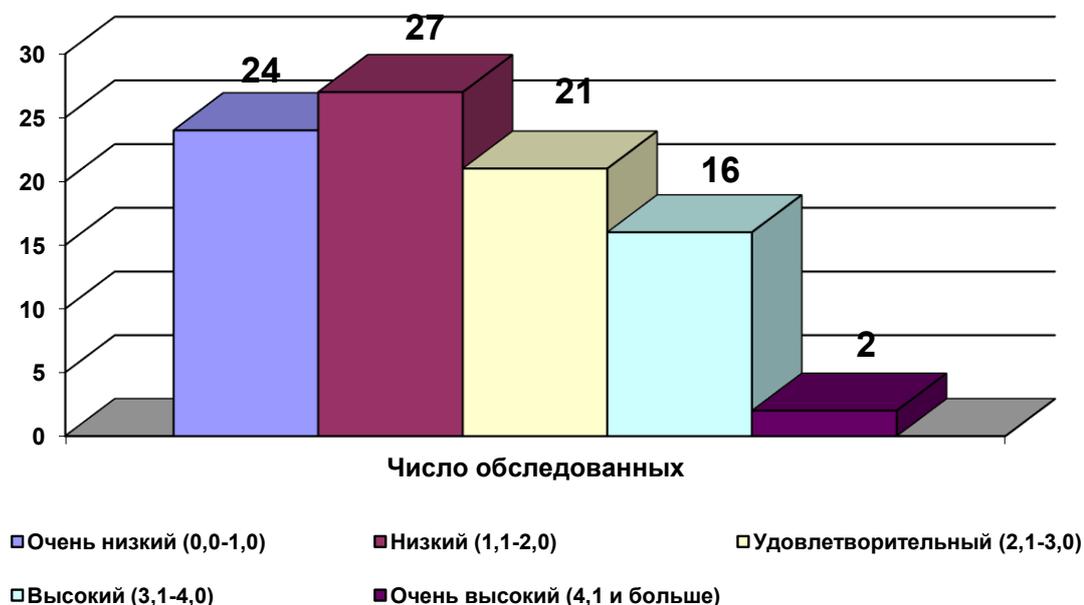
Many researchers have proven that dental caries is caused by a multifactorial disease and its development is important because it has the properties and composition of mixed saliva. The most significant local risk factors for caries, in addition to cariogenic microflora, include a violation of the composition and properties of oral fluid. The mineralizing properties of oral fluid determine the resistance of hard dental tissues to caries after the initial eruption, ensuring the

processes of enamel maturation. Mixed saliva performs a mineralizing function only under conditions of neutral or slightly alkaline pH, when the mother is oversaturated with calcium and phosphorus ions.

Consequently, under physiological conditions, saliva is a supersaturated solution in terms of calcium and phosphorus. Therefore, the physical properties of mixed saliva have a significant impact on the homeostasis of hard dental tissues. However, in modern literature, the study of the mineralization potential and biophysical characteristics of saliva is contradictory and limited to Uzbekistan.

In this section of the dissertation we studied the owls and the composition of mixed saliva of schoolchildren during the period of eruption of permanent teeth and the formation of the IX root. As well as the dynamic change in oral fluid, leading to the development and establishment of a cariogenic situation in the oral cavity of younger schoolchildren.

When studying the mineralized potential of oral fluid (MPS) in 90 children of primary school age, only 18 (20%) had high and very high MPS levels, which corresponds to 16 (17.8%) and 2 (2.2%). Shkolnikova (Fig. 5).



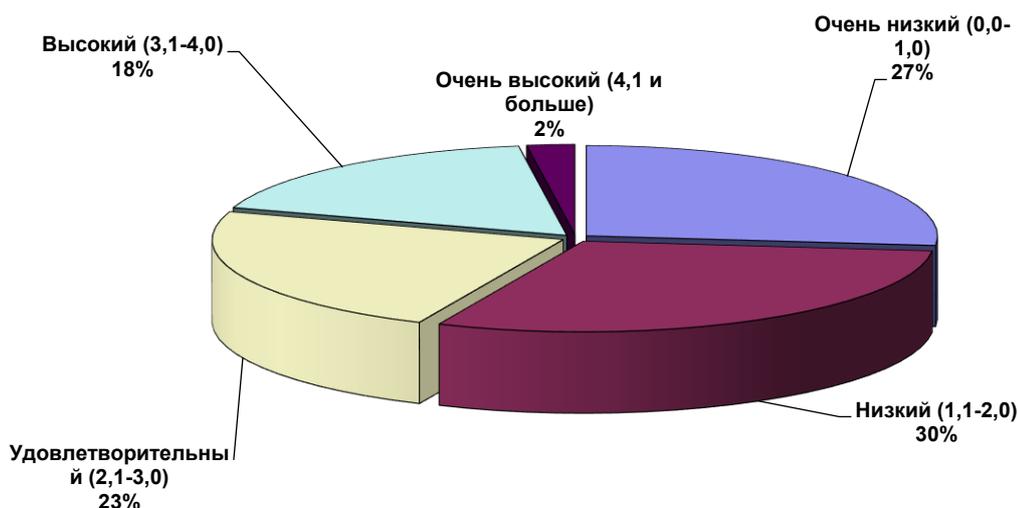


Fig. 5. Indicators of the mineralizing potential of saliva in the examined children

Satisfactory type of crystallization of oral fluid was revealed in 21 (23.3%) of the examined children. It should be emphasized that the smaller half - 39 (43.3%) observed during the period of eruption of permanent teeth had high, very high and moderate levels of MPS, the majority of children - 51 (56.7%) - had very low and very low MPS. It should be noted that the ratio of children with low and open low MPS with the basic and non levels corresponded to: 30.0% and 26.7% of cases. Probably, this is due to the fact that the age period - 7 years - the first eruption of permanent teeth occurs, and at 12-13 years old, basically all permanent teeth have already erupted, and in this age period there is a risk of caries damage to permanent teeth.

According to the results of the TEP test study, only 18 (20.0%) of the 90 observed schoolchildren had a high level of CR of tooth enamel, and the remaining 72 (80.0%) children had different levels of CR. 24 (26.7%) of those examined had moderate CR (MDCR), 27 (30.0%) - low CR (LCR), 21 (23.3%) - overt low CR (OLCR) (Fig. 6).

Table 3.5

TER test with indication

Number of surveyed	Final qualification work		UKR		NKR		ONKR	
	press	%	press	%	press	%	press	%
90 (100%)	n = 18	20,0 0	n = 21	23.33	n = 27	30.00	n = 24	26.66

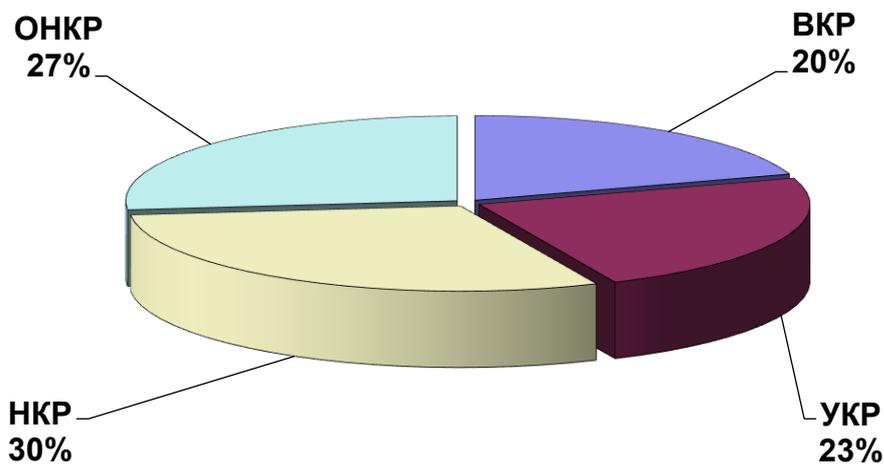
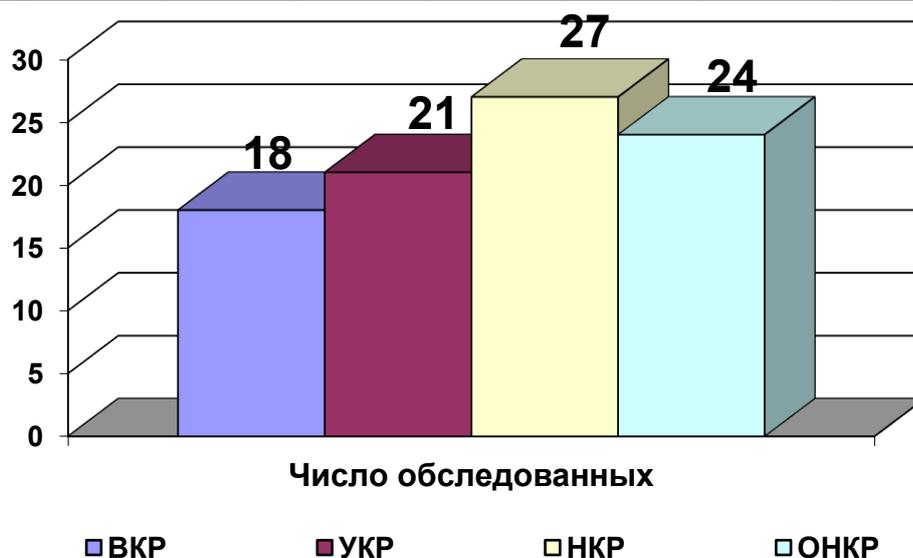


Fig. 6. TER test with indicators

The majority of the examined children (56.7%) had low or very low resistance of teeth to acidic action, which predicts the development of multiple caries. The results of the study of MPS and children with different levels of caries resistance of tooth enamel show that with VKR of enamel in 50.0% of cases there was a high

level of MPS; in 11.1%, high-level MPS were open, and the remaining 38.9% were satisfactory; children with low or open low MPS were not observed.

The results of the study of MPS and the second group (UKR) of children, presented in Table No. 2, show that 71.4% of students had an average level, demonstrated average values (2.1-3.3 points) of MPS, low levels were observed in (1.1-2.0 points) MPS was established in 19.0%, a high (3.1-4.0 points) level was noted only in 9.9%. The discovery of a high level of Shkolnikov and the discovery of a low level of MPS were not revealed.

NCR of tooth enamel was detected in 51.8% of cases, low MPS was established, and in 25.9% of cases - satisfactory; in 22.2% of cases, open low MPS was registered; high-quality MPS is not available.

In the fourth group of children with ONCD of tooth enamel, a predominance of low and very low MPS was established, respectively 50.0% and 37.5%; satisfactory MPS – 12.5% of cases; High and open high MPS are completely absent (Table 3.6).

The analysis of the obtained data shows that the mineralizing function of the root fluid is impaired at different levels of resistance to caries, and the mineralizing potential of saliva is expressed in the enamel of the teeth of the NKR and ONKR.

A direct correlation is revealed between the studied indicators of the enamel CR and the MPS, since the reduction of one of the indicators contributes to the deterioration of the other, so that they are dependent.

The analysis of the obtained data on the study of the biophysical properties of oral fluid in primary school children shows that with NCR and ONCR of tooth enamel, the specific viscosity of children with increased goiter and low salivation rate increases. Also in the 3rd and 4th groups, an increase in the viscosity of the oral cavity was noted, corresponding to 3.2 ± 0.14 ($P < 0.05$) and 3.51 ± 0.12 ($P < 0.05$) of the background arterial pressure.

The rate of salivation in the 2nd group corresponds to an average of $0.35-0.05 \pm$, which is within the normal range, in the 3rd group there is a decrease, which is $0.31-0.05 \pm$, and in the 4th group the relative decrease increases to 0.30 ± 0.01 .

The study showed that the buffer capacity of mixed saliva in the 3-extracted group tended to decrease with the normal value, and in the 4-extracted group, the NCR tended to decrease, and it was 8.1 ± 0.59 ($P < 0.05$) (Table 3.7).

Table 3.6

The frequency of MPS depends on the resistance of tooth enamel to caries.

TER index, n=90	1 group, n=18		2 groups, n=21		3 groups, n=27		4 groups, n=24	
MPS level	Final qualificatio n work		UKR		NKR		ONKR	
	pres s	%	pres s	%	press	%	press	%
Very low, 0-1	-	-	-	-	6	22.2 ± 1.89	9	37.5 ± 2.33
Short, 1.1-2	-	-	4	19.0 4 ± 2.0 2	14	51.8 5 ± 2.2 7	12	50.0 0 ± 2.4 0
Satisfactory, 2.1-3	7	38, $88 \pm 2.$ 71	15	71.4 2 ± 2.3 2	7	25.9 2 ± 1.9 9	3	12.5 0 ± 1.5 9
High, 3.1-4	9	50.0 0 ± 27 8	2	9, $52 \pm 1.$ 51	-	-	-	-

Very Tall, 4.1-5	2	11.1 0±7.4 0	-	-	-	-	-	-
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When studying the acidity of oral fluid in groups 1 and 2 of teeth with enamel of the upper and lower granularity, the average pH of the oral fluid was 7.18 ± 0.05 and 6.93 ± 0.11 . Fluctuations in the pH level of mixed saliva with normal values. In group 3 with the enamel index of teeth of the lower granularity corresponded to the lower granite norm and averaged 6.69 ± 0.04 . In group 4 with enamel of teeth of the lower granularity, the pH level was significantly reduced and amounted to 6.60 ± 0.03 ($P < 0.05$).

Table 3.7

Studied biophysical parameters of mixed saliva at different levels of caries resistance of tooth enamel ($M \pm m$)

TER is shown	1 group, n=18	2 groups, n=21	3 groups, n=27	4 groups, n=24
The indicators under study	Final qualification work	UKR	NKR	ONKR
pH (6.7-7.5 points)	7.18 ± 0.05	6.93 ± 0.11	6.69 ± 0.04	6.60 ± 0.03
Buffer capacity (9-11 points)	10.30 ± 0.91	8.96 ± 0.75	8.72 ± 0.64	8.1 ± 0.59
Saliva secretion rate (0.30-0.48) ml/min.	0.43 ± 0.02	0.35 ± 0.04	0.31 ± 0.05	0.30 ± 0.01
Viscosity 0.71-2.0 rel. units	1.68 ± 0.07	1.49 ± 0.05	3.2 ± 0.14	3.51 ± 0.12

KOSRE (1-3 days)	3.0 ± 0.11	2.9 ± 0.2	3.6 ± 0.5	3.9 ± 0.31
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The main natural result of homeostasis in the oral cavity is the pH of saliva. Normally, the pH of saliva fluctuates within 6.8-7.2. A significant decrease in the pH of saliva, which lasts for 30 minutes or more, is noted after taking carbohydrates. A decrease in the pH of saliva creates a direct effect on its mineralizing function, it becomes calcium deficient, that is, from a mineralizing liquid it becomes a demineralizing liquid. Under conditions of a decrease in the pH of saliva, the stability of the micelle in it decreases, the ability to maintain calcium ions and phosphates in a supersaturated state is lost, which leads to structural changes in saliva and a decrease in its mineralizing potential.

Therefore, the study of MPS, pH, SSS and the severity of oral fluid in primary school children is important for predicting the development and establishing the cariogenic situation in the oral cavity of children during the period of eruption of permanent teeth. The KOSRE test is a clinical indicator of the rate of enamel remineralization or the rate of remineralization of the saliva potential, which changes during the period of caries of permanent teeth.

The study of this indicator depending on the enamel CR so far shows that in groups 1 and 2 with VCR and UCR of tooth enamel this indicator is normal. In schoolchildren in groups 3 and 4 with NCR and ONCR it is reliably higher than the norm, respectively 3.6 ± 0.5 ; 3.9 ± 0.3 , which indicates the rate of remineralization of tooth enamel.

Oral fluid is one of the informational biological fluids in the human body. The mother plays an important role in regulating homeostasis. Various parameters of oral fluid allow it to be used as a marker for studying diseased organs.

In this case, it is possible to make a conclusion, since in teeth with enamels NKR and ONKR there is a lower potential of mixed saliva compared to teeth with enamels VKR and UKR. The established changes in a number of biophysical saliva,

and the approved ecorea pH of the Oral head and its discharge rate indicate the presence of an increased cariogenic zone in the pollen of the mouth of children, the RISK OF SPREADING caries of permanent teeth increases after IK Slits.

According to A.R. Pozdnev (1993), with a mineralizing potential of saliva up to 2.0 points, clinically active dental caries is observed. Indicators of moderate and high MPS, buffer capacity and acidity of oral fluid in schoolchildren characterize the high compensatory and caries-protective capacity of saliva and the restorative and corresponding conditions in children of primary school age. In addition, the mineralizing potential of saliva and its biophysical properties for the purpose of caries prevention were identified.

The study of the concentration of cariogenic microflora in soft dental plaques located on the vestibular surface of the teeth established a fairly high level of pathogenicity of *Str . mutans* , when comparing ix with the concentration and mixed slant. Thus, colonies of *Str . mutans* with a high level of pathogenicity in children with NCD of enamel were found in 38.2% of cases. Low pathogenicity in 36.7% and only in 25.1% of cases in the absence of *Str . mutans* colonies . In children with NCD in enamel, colonies of *Str . mutans* with a high degree of pathogenicity were established in 53.7% of cases. A low level of pathogenicity of this cariogenic microflora was established in 37.2% and only in 9.0% cariogenic colonies are absent.

Thus, the concentration colony of cariogenic microflora *str . mutans* high pathogenicity was found mainly in soft dental plaque on the suffocating high modernity, note, by analogy with mixed saliva in most children with NCR and ONCR enamel. Moreover, in children with enamel NCR, *str . mutans* with high and low pathogenicity, was mainly at the same level, respectively, 38.2% and 36.7% and together, making up more than half 74.9% of the total level.

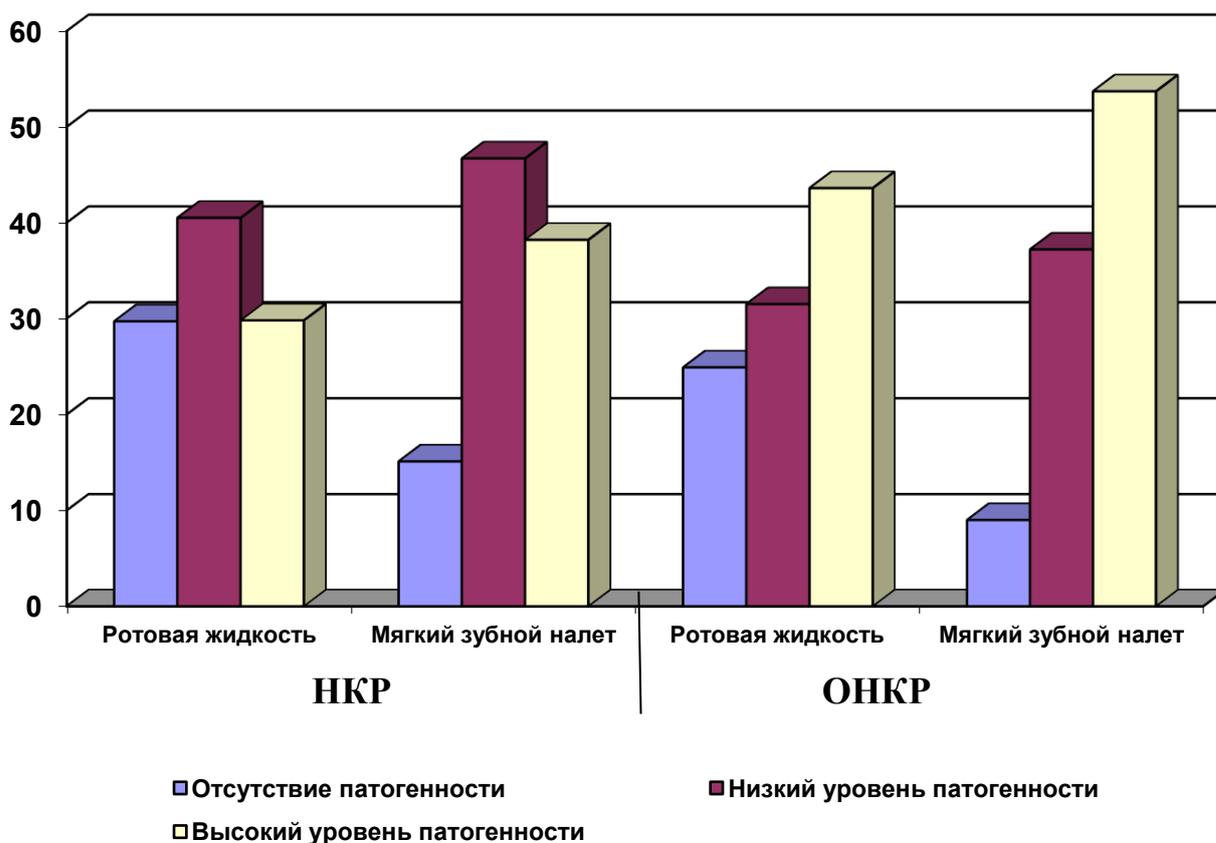


Fig. 8. Concentration of pathogenic levels in the colony of Str . mutana in oral fluid and soft dental plaque

Table 3.8

Concentration of the pathogen level in the colony of Str . mutana in oral fluid and soft dental plaque

Pathogenic colony levels, str . mutants	NKR		ONKR	
	Oral fluid	Dental caries	Oral fluid	Dental caries
	V %			
1. Lack of pathogenicity	29.7	15.1	24.9	9.0
2. Low level of pathogenicity.	40.5	46.7	31.5	37.2

3. High level of pathogenicity.	29.8	38.2	43.6	53.7
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At ONKR enamel colony st . mutans with a high level of pathogenicity is relatively higher than with a low level of pathogenicity, which corresponds to 43.7 and 37.2% of cases. In the total number of examined junior schoolchildren, colonies with a high pathogenicity index of this microflora were established in two teeth 22.5%, on three or four - in 29.2% and on one tooth in 14.5% of cases. The data obtained indicate that in a colony with a high pathogenicity level, mutans str . are found in dental plaque not on the alley surfaces of the teeth, but at the base on 2-3-4 teeth located in the lateral surfaces of both the upper and lower teeth, which means that when examining dental plaque for the presence of pathogenic microflora, it is necessary to examine dental plaque, preferably all studies of teeth to obtain more reliable information. The presence of abundant teeth of deposits with a high level of pathogenicity of microflora indicates that oral hygiene is not provided to children at a long-term level, and sometimes is completely absent. Accordingly, in schoolchildren with NCR and ONCR of tooth enamel, the risk of developing multiple dental caries lesions and the establishment of a cariogenic situation in the oral cavity is predicted, which requires the immediate use of active anti-caries treatment and preventive measures.

**Chapter 4. VOLUME OF TREATMENT AND PREVENTIVE MEASURES,
CONDUCTED BY MIX AND RAMKAKS PROGRAM
COMPLEX OF TREATMENT AND PREVENTIVE
MEASURES DEPENDING ON THE LEVEL OF ENAMEL
CARIES RESISTANCE DURING THE PERIOD OF
FORMATION OF THE ROOT OF PERMANENT TEETH AND
CHILDREN**

Prevention of dental caries in primary school children

If you look at certain successes in caries prevention, a high prevalence and intensity of dental caries is recorded, especially among the child population. Currently, there are many works on the prevention of dental caries in children, a large positive experience has been accumulated in the development of promising measures, the level of dental morbidity, according to this VAZ, is not removed. The relevance of developing prevention methods is also associated with a decrease in the volume of therapeutic measures and, as a consequence, material costs, since the cost of preventive methods is 20 times the cost of treating your developing diseases.

As is known, the problem of caries and pain has a long history. The interest and constant attention of specialists to the problem of connection with the widespread and not decreasing disease of the population. At the same time, world dental practice convincingly shows that it is possible to preserve tactful teeth and periodontal canals only by introducing methods of prevention of dental diseases into everyday practice. However, many scientific works indicate a low level of awareness of the population in matters of prevention of dental diseases.

It is known that dental caries is a multifactorial disease, manifested by foci of enamel demineralization. The leading factor in the development of dental caries is the carious microflora of the oral cavity, the cause of caries is chronic infection of teeth, leading to an imbalance of many factors.

In the middle layer of microflora, streptococci play a leading role. Most cariesologists have proven that the level of *Str.mutans* and *Lactobaccililus* in the oral cavity contributes to the spread of dental caries. The main factors that play a role in the development of dental caries are the structure of the teeth, temporary and permanent bites. A characteristic feature of children's milk and permanent bites is the biochemical immaturity of tooth enamel, which makes teeth vulnerable to unfavorable factors. Maturation of enamel after teething occurs due to the presence of remineralizing activity of saliva. Saliva not only provides remineralization, but also maintains health and oral health due to its protective immune and bactericidal action.

Characteristics of tooth enamel and the level of resistance to caries

The conducted studies in children of younger age during the period of formation of cones and biochemical immaturity of enamel revealed that in most children during this period there is a decrease in acid resistance of enamel and dentin. When determining the caries resistance of teeth TEP-test, children in the study groups (table) are divided into 4 levels of CR: VR, UKR, NKR and ONCR of enamel. Depending on the level of CR of enamel, caries prevention programs were developed at the group level and the effectiveness of their use was studied. For this, 4 treatment and preventive groups were formed. In the 1st group, 18 children with VC, 2nd and 21 UKR, 3rd and 27 NKR, 4th and 24th children with ONCR enamel teeth.

For each group of children, a set of caries-preventive measures and surgical restorative treatment (SRT) of caries in permanent teeth was developed and applied individually.

Table 4.1

Frequency and periodicity of oral hygiene care in schoolchildren

Group No.	Hygienic dental care			Periodicity		Execution		Selection of oral hygiene products and hygiene
	absent	1 time per day	2 times a day	regularly	irregularly	Right	wrong	
	%							
1	-	51.3	48.7	100	-	54.7	45.3	parents
2	-	56.1	43.9	100	-	36.2	63.8	parents
3	-	65.3	34.7	49.9	50.1	17.3	82.7	parents
4	25.4	63.9	10.7	48.7	51.3	12.5	87.5	parents

The survey results showed that in the first group, 100% of children brush their teeth, 51.3%, i.e. the majority - once in the morning with toothpaste and a toothbrush selected for their parents or themselves, and the remaining 48.7% twice a day, as well as periodic use of personal hygiene products. In the 2nd group, 100% of children brush their teeth regularly, at least twice a day (43.9%), and the remaining 56.1% only once a day, with randomly selected toothpaste and toothbrushes.

Moreover, 3 - half of them (42.1%) brush their teeth irregularly - 27.4% brush their teeth 2 times a day, the remaining 30.5% do it once a day, do it irregularly, and also use random hygiene products RTA.

At the age of 4, half of them brush their teeth regularly (51.3%), 15.4% do not brush their teeth, and 33.3% brush their teeth occasionally or irregularly. According to Table 4.1, most children in groups 3 and 4 do not observe proper dental hygiene, which contributes to the development of second pathogenetic diseases and caries.

Based on the days obtained, individual caries prevention programs and OVL caries permanent teeth were developed for the groups, taking into account the period of eruption and formation of roots. Low dental literacy of children's studies indicates

the need to intensify dental education in organized children's groups in kindergartens and schools.

Assessment of the risk of developing cariogenic situations in the oral cavity of primary school children

A cariogenic situation, according to Professor V.K. Leontiev, is created when any cariogenic factor, or group IX, acts on a tooth, making it susceptible to the effects of kilo. The fluff mechanism is the oral cavity with the obligatory presence of gulevodov and contact of these two factors with dental tissues.

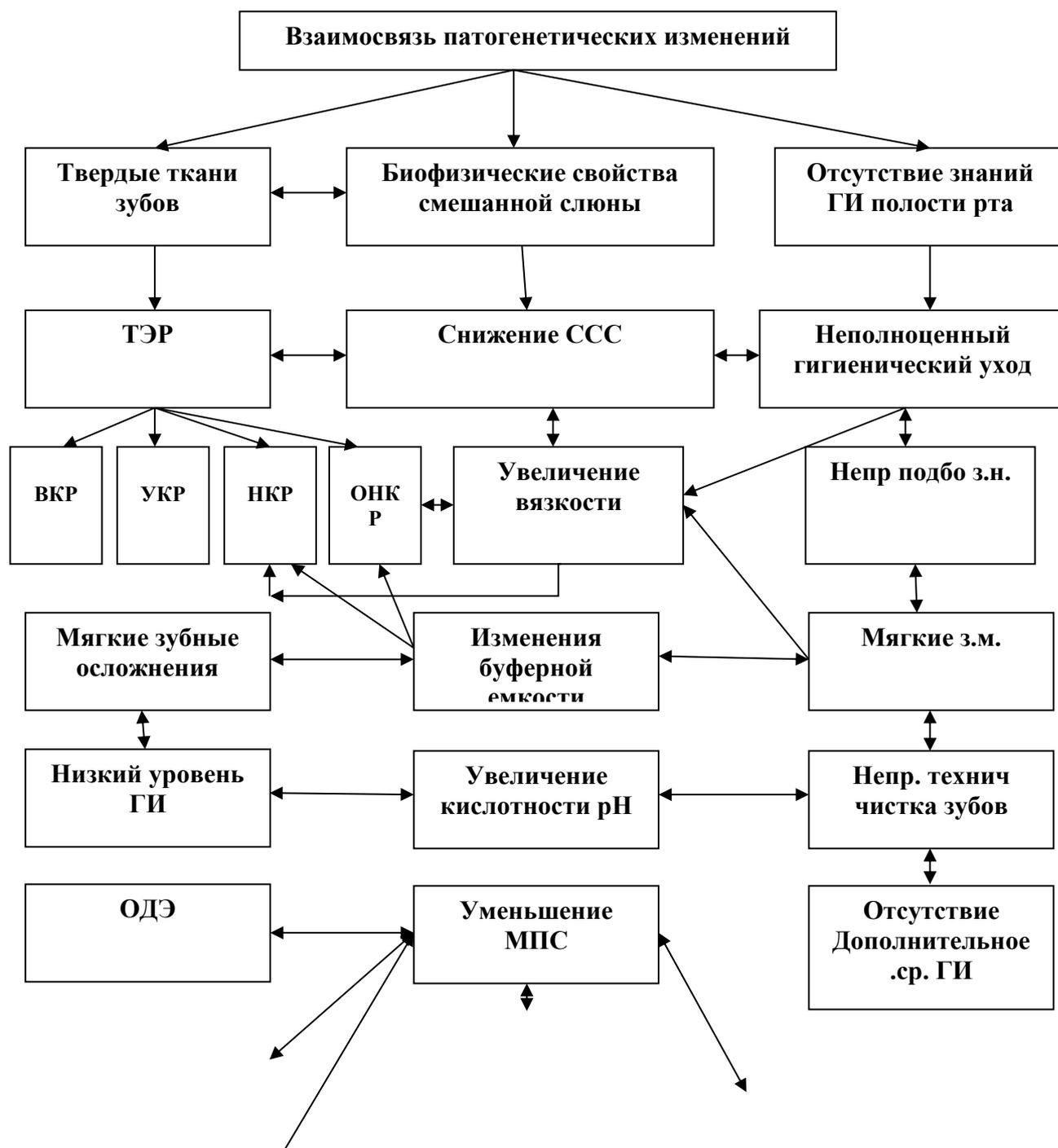
In conditions of reduced tissue resistance, the cariogenic situation develops quickly. Clinically, the cariogenic situation in the oral cavity is manifested by the following main symptoms: 1. Poor oral hygiene; 2. Excessive plaque; 3. Incomplete maturation of tooth enamel; 4. Changes in the composition and properties of oral fluid, its concentration, viscosity, quantity and speed of secretions, etc.

It should be noted that the course of caries in a cariogenic situation is characterized by sharpness, the presence of pigmented dentin, chipping or other edges of the enamel. Such a clinic of caries in a cariogenic situation is characterized by a third color or decompensated caries, that is, high activity of the course.

The oral cavity is an ecological niche, which is constantly visited by a large number of different microorganisms both in practically healthy people and in patients. Qualitative and quantitative characteristics of the bacterial landscape of the oral cavity indicate that microorganisms are in a state of dynamic equilibrium between different types of microbiocenosis, as well as a complex of factors of local immunity, confirming the individual characteristics of the patient and the development of dental caries in each person. The unfavorable effect of low salivation rate revealed in children is aggravated by an increase in saliva viscosity, characterized as a high-risk factor for the development of dental caries.

The above-described assumptions of the picture of development and establishment of cariogenic situation in the oral cavity in children very closely go to the data obtained during the studies in children with personal levels of enamel CR. The studies conducted confirm the presence of all 4 above-described clinical symptoms of development of cariogenic situation in the oral strip in younger schoolchildren.

Algorithm of the main pathogenetic stages of development of cariogenic situation in the oral cavity in primary school children



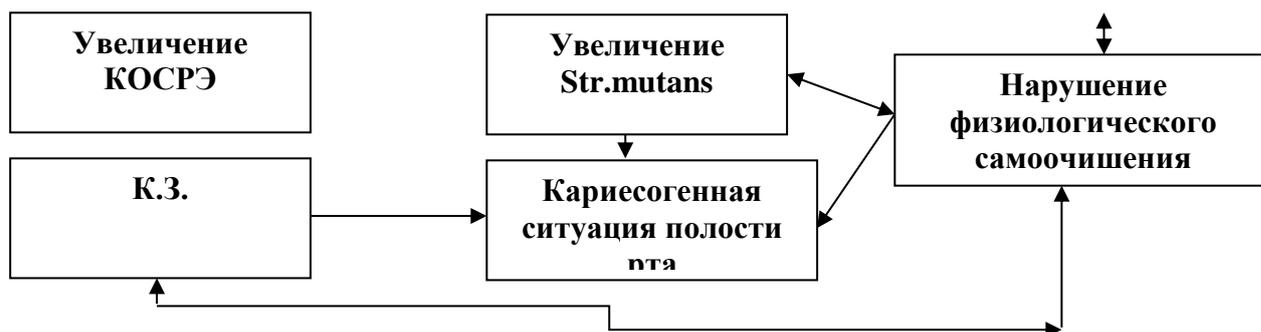


Fig. 4.1. The main pathogenetic stages of development of carious situations in primary and secondary school students.

Based on the study of the obtained data, characterizing the pathogenetic relationship of the identified factors in the development of dental caries, an algorithm for the relationship of the main pathogenetic links in the development of caries in young children was built (Fig. 4.1).

A number of factors (more than 20) of the risk of developing dental caries have been identified (Fig. 4.2), of which 8 of the most important factors have been identified: MPS, buffer capacity, acidity (pH), decreased SSS, increased viscosity of mixed saliva, the presence and increased cariogenic microflora, *Str. mutans*, increased GI, and disruption of the physiological processes of self-healing of the colon in children.

The frequency of occurrence of the main 8 factors of caries development was analyzed. The analysis showed that none of the studied facts were revealed in children with high-grade caries enamel. In high-grade caries enamel, 1 factor and 21.2% showed an increase in GI, in low-grade caries enamel - 4 factors and 32.1%, and 6 factors and 46.7% of detail, and 8 - 21.2%. In low-grade caries, 4 factors accounted for 5.3%, 5 factors - 7.1%, 6 factors - 49.4%, and all 8 factors - 38.2%.

In my opinion, the majority of children (67.9%) with NCD have 6 and 8 risk factors for caries development. 32.1% of the observed children have only 4 markers for the risk of dental caries development, and in one child 1, 2, 3 markers are not detected. With ONCD, in 94.7% of cases, the risk markers for caries development

have more than 4, up to 5, 6, 8 factors, of which 5.3% are found in the enamel of the VC.

In the 3rd and 4th studied groups there is a combination of all three clinical signs indicating the risk of developing a cariogenic situation in the oral cavity in the near future if appropriate measures are not taken (Fig. 4.2). Thus, in the majority of schoolchildren of the 3rd group 57 (63.3) and 83 (92.2). 4 groups of open high risk of developing both a cariogenic situation and multiple dental caries lesions were established.

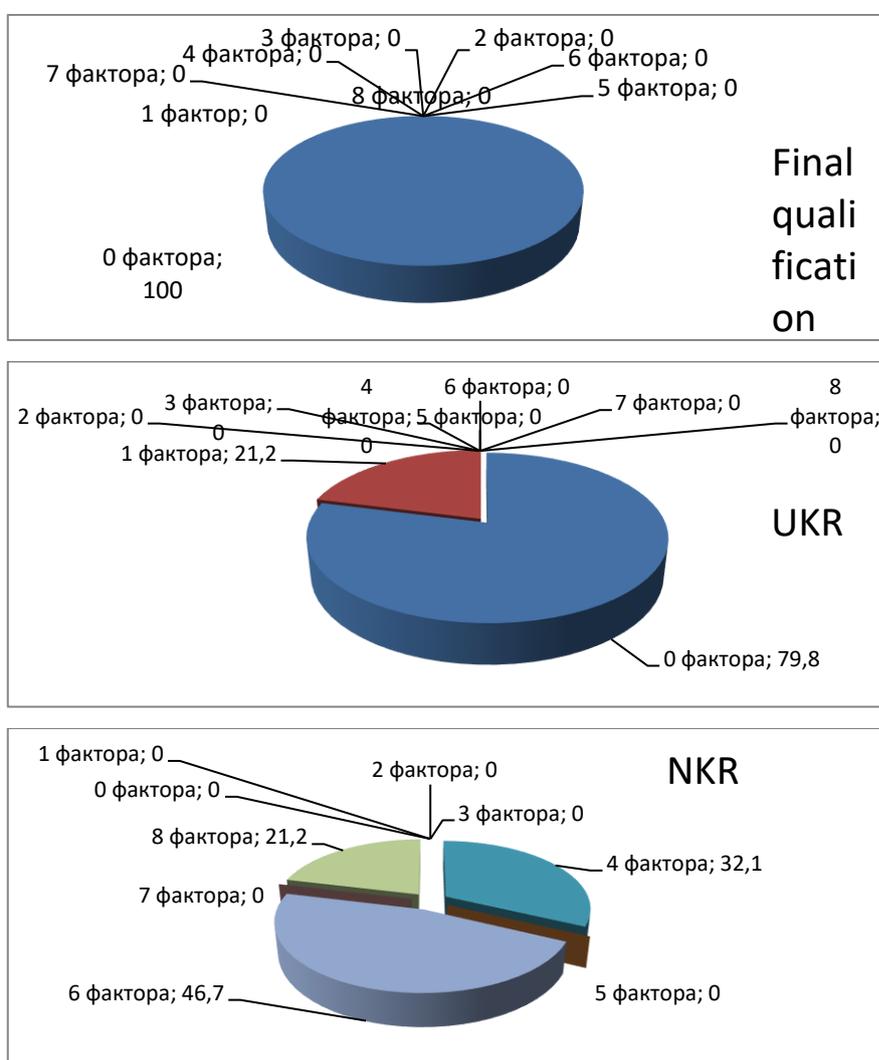




Fig. 4.2. Frequency of occurrence of the main 8 risk factors for caries development and the degree of enamel caries.

As can be seen from the data of Table 4.2, children of Group 1 with VKR of tooth enamel have only one clinical symptom indicating the development of a cariogenic situation in the oral cavity. This is a low hygienic index in 3 children (16.7%) before providing oral hygiene lessons, and after conducting these lessons, a significant decrease in the number of children with a low level of hygienic condition of the oral strip is noted from 3 to 1 child (5.5).

Table 4.2

The main clinical symptoms of the development of carious situations in primary and secondary school students.

Group No.	Low G.I.		Abundance of dental plaque		Low MPS		All	
	press	%	press	%	press	%	press	%
1	3	16,7	-	-	-	-	3	16.7
	1	5.5					1	5.5
2	8	29.6	3	16.8	-	-	11	?
	4	9.0	-	-			4	9
3	18	66.6	15	55.6	24	26.7	52	63.3
	6	22.2	10	37.0	6	17.8	22	24.4
4	19	78.6	17	70.8	27	30	83	92.2
	7	29.1	11	45.7	18	20	56	62.2

Note: the numerator shows data before treatment, the denominator shows data after treatment.

In the second group of students with UCR tooth enamel, 2 clinical symptoms are also observed, indicating the possibility of caries development in this area. In 8 (29.6) schoolchildren with low hygienic status, combined with 3 (16.7) children with abundant dental orthogenia. Thus, in total, 11 (12.2%) schoolchildren have a group of various cariogenic situations.

he is practically healthy and stable at school age, there are no other specialists, and there is no need to pay attention to the need for increased attention when planning and implementing dental anti-caries treatment and preventive measures.

Types of medical and preventive complexes

It is known that the correct selection of a set of personal and professional hygiene products is important for children, especially during the period of root teeth formation, which is a key stage in the process of caries prevention. The treatment and preventive group program compiled for each includes: dental training, 2-3 training sessions on hygiene, selection of a toothbrush, controlled hygiene, fluoride-containing preparation of teeth.

The preventive programs pursued two directions: the first - anti-caries preventive measures and the second - surgical and restorative treatment of caries (middle and deep) of molars and premolars of the upper and lower jaws.

Based on the combination of treatment and preventive anti-caries measures, an algorithm for a program for the primary group of teeth with enameled teeth with VKR was compiled (Fig. 4.3).

The second program of the complex of anti-caries treatment and preventive measures for children with UCR of tooth enamel consisted entirely of the stages of the 1st program, supplemented by treatment in the form of deep fluoridation of fissures and pits of the erosive surface of teeth with Glufluored preparations.

Preventive measures of professional oral hygiene 2-3 times a year, active and high-quality methods of dental education, motivation of the child and parent.

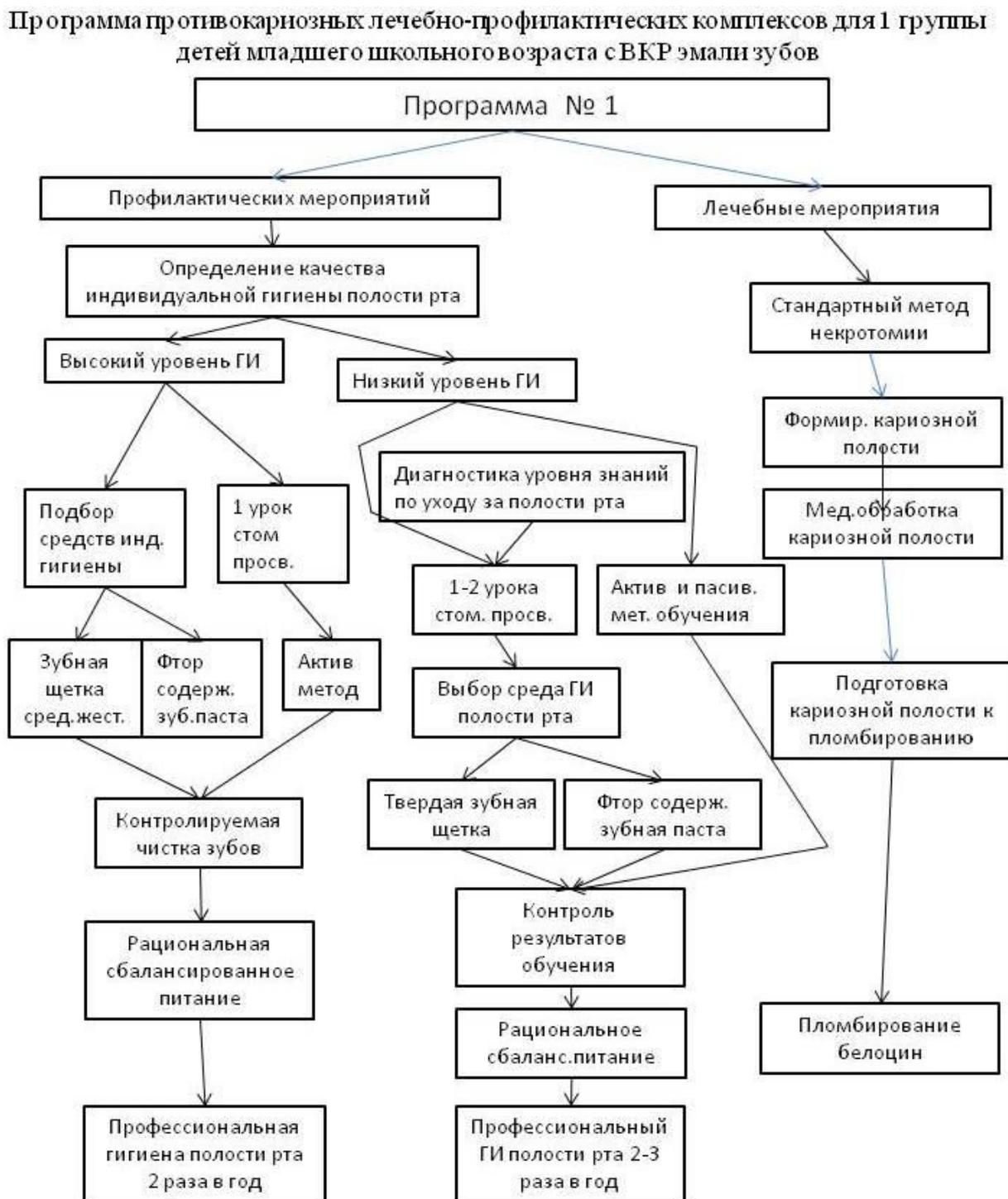


Fig. 4.3. Algorithm of the program of treatment and preventive measures For group 1 children with VKR enamel

Algorithm of the third program of the complex of anti-caries treatment and preventive measures for children with enamel NCR (Fig. 4.4).

Algorithm of the second program for children with UCR of tooth enamel

Программа противокариозных лечебно-профилактических комплексов для 2 группы детей с УКР эмали зубов



Fig. 4.4. Algorithm of the second program for children with UCR of tooth enamel

For children with enamel deficiency in 3 groups, it is recommended to carry out combined treatment both locally and internally to strengthen the enamel of the

teeth. 1 tbsp. 2-3 times a day after meals, with a complex of multivitamins. Of the exogenous preventive measures added - determination of the level of intellectual, physical and socio-economic potential of the child and his family (OIFIS); - teaching the child to the semi-method of a household hygienic brush controlled by a brush - a professional hygienic brush 4 times a year. Recommended additional means Hygiene IE FLUORIDE-CONTAINING PASTES Not less than 500 PPME FOR 1.5-2 months and alternating it with calcium-containing toothpastes for the same period, for 1 year.

For the 3rd preventive group of children with NKR enamel, the full volume of the second program is added to the complex exo- and endogenous method of preventing and treating dental caries.

To strengthen the enamel of the upper and lower jaws, the jaws were split 3 times and deep fluoridation therapy with Gluftored was carried out 1-2 times with a weekly interval of 7-10 days. Everything was done in 2-3 courses.

The treatment of dental caries was carried out by a completely non-standard method of preparation, a minimally invasive one. For this method, a caries detector is used, a 0.1% fuchsin solution for coloring the pathological lesion of hard dental tissues, if necessary, several times after removing the lesion, remineralization of the carious layer is carried out using the method of deep fluoridation with Gluftored according to the instructions. If necessary, 2-3 sessions of a course of treatment are carried out, which are repeated 2 times with an interval of 1 week. Subsequently, the carious layer was sealed with SIT Arion Molar AC containing silver, which has a bactericidal effect, active fluoride ions in its composition, remineralizing effects were continued for up to 2 years (Fig. 4, 5).

Программа противокариозных лечебно-профилактических комплексов для 3 группы детей с НКР эмали зубов

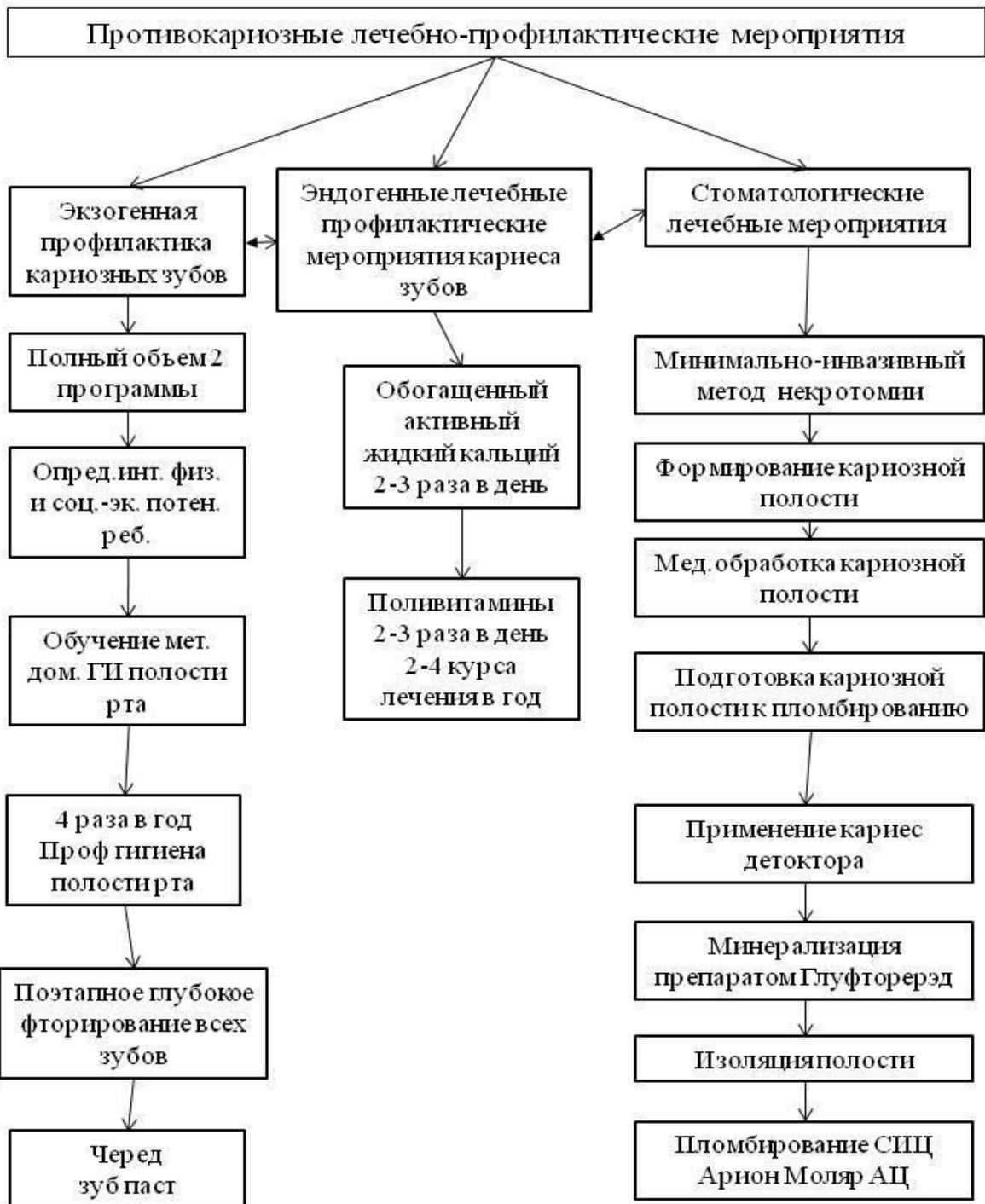


Fig. 4.5. Algorithm of three programs of the complex of anti-caries treatment and preventive measures for 3 groups of children with NCR of tooth enamel

In the 4th group of children with the presence of ONCR of tooth enamel, a more comprehensive program of complex anti-caries treatment and preventive

measures was created, including the full volume of the 3rd month of the developed complex program plus additional treatment of orphans, exogenous use of fluoride in video application of 2% sodium solution and periodontal fluoride (2 months) use of calcium-containing paste every day for 4 weeks with the use of fluoride-containing toothpaste, the course of treatment is carried out with 10% fluorine solution. calcium gluconate, 0.01% sodium fluoride solution 2 times a day and 1 month of combination with fluoride-containing paste. An intensive course of professional hygiene is carried out 4-6 times a week, until 2-3 months after the show. And endogenous treatment is added with probiotics for the growth of intestinal and colon microflora.

Conducting additional 4-6 stages of oral hygiene, constant monitoring of acquired skills, work of stable skills and high level of hygienic knowledge, consolidation and ix improvement, method of medical and pedagogical training. The method of medical and pedagogical training is an integral part of primary prevention and dentistry.

The algorithm of the 4th software complex of anti-caries treatment and preventive measures for children with ONCR of tooth enamel is shown in Figure 4.6.



Fig. 4.6. Algorithm 4 software complex of anti-caries treatment and preventive measures for the 4th group of children with ONCR of tooth enamel

Summary table combining programs of complexes of anti-caries treatment and preventive measures for children with different levels of dental enamel CR

Based on the developed algorithms, a computer program of algorithms for treatment and prevention of anti-caries complexes for personal levels of enamel caries was created under the name (VRAPLM.exe)

CONCLUSION

The study of the properties and mechanism of action of SITs with increased fluoride content on hard dental tissues, as well as the study of the effectiveness of their use in a clinic with a minimally invasive preparation method, is of practical interest and attracts the attention of pediatric dentists.

The essence of the method of minimally invasive preparation and dentistry is the early diagnosis of carious disease and minimal surgical removal of pathological damage to the tooth. At the clavicular stage of treatment, filling is carried out with special restorative materials. The effectiveness of the results of treatment by the minimally invasive method is determined by the quality of restoration, the absence of relapses of carious disease.

A necessary condition for minimally invasive intervention is control of risk factors for the development of dental caries in children, active caries prevention procedures. In minimally invasive interventions, prevention includes detection and removal of plaque, active remineralization of tooth tissues and preventive measures (fluoride applications, toothpaste with fluoride).

The problem of dental caries treatment has been one of the main problems in dentistry for many years. Effective and high-quality caries treatment prevents the development of complications - secondary caries.

According to literary data, about 40% of all specialists in therapeutic and dental care are involved in the treatment of teeth, carried out in connection with secondary and recurrent caries.

Despite certain successes in caries prevention, high prevalence and intensity are registered, especially among the child population. Currently, many methods for the prevention of dental caries in children have been developed and used. Despite the fact that a large positive experience has been accumulated in the implementation of promising measures, the level of dental morbidity according to VAZ data is not removed. The relevance of developing prevention methods is also associated with a decrease in the volume of treatment measures and, as a consequence, material costs,

since the cost of preventive methods is 20 times the cost of treating your developing diseases.

In this regard, today preventive dental diseases are becoming one of the main and most important areas in protecting children's health.

Reducing the level of dental diseases in children and priority treatment of primary caries in modern dentistry. Childhood is the best prospect for achieving high rates in the implementation of preventive measures.

Modern theories of caries development are explained by processes of complex interaction of various risk factors, both general and local. These interactions are realized in the system "microorganism - saliva - enamel structure". The most significant factor, according to research, in addition to cariogenic microflora, is the violation of the composition and properties of oral fluid. The mineralizing properties of oral fluid determine the resistance of hard dental tissues to caries after eruption and ensure the processes of enamel maturation.

During the examination, all children were practically healthy and were not registered with family specialists. The examination of children was carried out using a standard set of dental instruments under artificial lighting.

During the examination of children, the following generally accepted follow-up activities were followed: external examination, examination of the functions of the maxillofacial region, examination of the lips and oral mucosa, study of the condition of the tinnitus, assessment of the location of the teeth, dental arches and me, assessment of oral hygiene, narrowing of the hard teeth.

The work uses clinical, radiological, microbiological, clinical laboratory, and clinical functional research methods.

In addition to the main clinical and laboratory methods of research, the following were studied in 405 children: the spread, intensity, and increase in intensity of caries. This is ethics, as well as a certain level of hygiene, knowledge of education and pedagogy, and methods of proper implementation of hygiene.

The simplest criterion for assessing oral hygiene is the calculation of the tooth surface covered with plaque, expressed as a number. For this, the Green-Vermilion method was used.

Despite the fact that many studies have proven the importance of oral hygiene in the development of caries and periodontal disease, young children have a weak level of knowledge and skills in oral care. The state of oral hygiene in the observed children was assessed using the Fedorova-Volodkina criteria as modified by Pakhomova.

The results obtained indicate a low level of hygiene knowledge and insufficient volume of health education propaganda among children of primary school age.

Vyavi has a low level of knowledge of children on oral care, conversations were held with parents of schoolchildren. It was found that not all parents have enough knowledge and motivation to bring oral hygiene skills to their children. Moino suggests that the sanitary literacy of parents is not at a long-term level and they have a low sanitary culture of oral care. Most schools have a sufficient number of dental assistants, school and dental offices and schools. This is evidenced by the choice of parental oral hygiene products for children. Parents chose a toothbrush and toothpaste for children not for childhood, but focusing mainly on advertising publications or videos in the media, listening to the recommendations of familiar relatives or friends. The above described evidence of sufficient receipt of appropriate information from the specialists themselves: dentists and pediatricians.

The survey found that at the age of 6-7, all children (60%) have adopted toothpaste and toothbrushes. At the age of 8-9, 32.4% of children choose toothpaste based on information received from TV programs, radio broadcasts, and the school dentist. More than half of schoolchildren aged 10-11 (53.7%) have access to hygiene products.

The obtained data indicate a sufficient level of knowledge of preschoolers' parents about methods and means of oral care, which shows a low level of oral

hygiene of the children studied. During the survey, 50.3% of parents did not know about the possibility of preventing dental caries by caries-preventive measures. Also, the responsibilities include the program and methods of caries prevention, the organization of sanitary culture of parents and the school in organizing the caries prevention program.

The low level of hygiene culture indicates insufficient awareness and broad sanitary and educational work of pediatric dentists among parents and children. Under these conditions, it is possible to predict the development of a cariogenic situation in the oral cavity of schoolchildren, leading to a high prevalence of dental caries and periodontal diseases. Based on the data obtained, individual oral hygiene lessons were developed, caries prevention measures were provided by dental professionals together with parents.

The study of the cost of dental tissue hardness in children is provided for by the WHO and ICDAS II criteria. According to the WHO criteria, the prevalence of caries in children aged 7-12 years is 89.5%, the intensity of tooth decay and surface destruction is 2.63 ± 0.03 and 2.72 ± 0.02 , respectively (standardized indicators).

This image convincingly shows and proves the obtained data on the condition of hard dental tissues, thanks to the use of ICDAS II criteria, allowing to obtain more accurate information characterizing the stage of damage, the process of dental caries. teeth and the carious process. Of particular importance is information on the presence of initial carious lesions, its prevalence and intensity, which makes it possible to timely and successfully treat initial caries with modern drugs. ICDAS II criteria allow the dentist to pay more attention to the condition of the tooth surface, which is most often found in children.

The ICDAS II criteria allow for an accurate assessment of the condition of hard dental tissues, while not only carious areas are affected, but initial carious lesions, characterized by demineralization of hard dental tissues, without the formation of carious areas of enamel and dentin, which is especially important during dynamic observation.

In this study, the intensity of dental caries (according to WHO) is determined by the KPU index, which shows the number of caries lesions in children on average per child.

Analyzing the obtained results, we can confidently state that with the increase in the age of children, an increase in the intensity of dental caries and surfaces is observed. Similar dynamics have changed, and are observed in the prevalence of dental caries in children.

Having identified a low level of knowledge and are children on oral care, conversations were held with parents of schoolchildren. It was established that not all parents have enough knowledge and motivation and to check the activities on oral hygiene in ix children. Moino will assume that the sanitary literacy of many parents is not at a full level and their sanitary culture is low and similar to the plain. Most parents have enough dental assistants for their children, which they receive at the school-dentist. This is also evidenced by the choice of parental hygiene products for children. Parents chose a toothbrush and toothpaste for children not for childhood, but focusing mainly on advertising publications or videos in the media, listening to the advice of familiar relatives or friends. The above described evidence of sufficient receipt of correct information from the specialists themselves: dentists and pediatricians.

It was found that when choosing toothbrushes, parents of schoolchildren aged 7-9 and 8-9 were more guided by the old data, when they preferred toothbrushes with natural bristles.

At the age of 10-11, more than half of children (67.5%) have clean teeth and more modern toothbrushes with artificial brushes that meet more hygienic requirements.

In 6-7-year-old school and primary school (47.8%), hygienic pastes are used. Older children used toothpastes with therapeutic and prophylactic effects. At the age of 8-9 years, anti-inflammatory toothpastes were used in 21.6% of cases, anti-caries - in 32.4%, containing fluoride - in 26.2% of cases. As we noted, with the increase

in the age of children, the percentage of use of anti-caries and fluoride-containing toothpastes increased, respectively: 36.1%; 34.0%. The use of anti-inflammatory dental products is low in all 3 age groups, and the basic level is not the same, and the use of hygiene products is low and decreased.

It should be noted that the use of toothpastes containing fluoride salts increases sharply with age in children. Among schoolchildren aged 8-9, the majority (32.4%) used anti-caries pastes, in second place were not using pastes containing fluoride (26.3%) and anti-inflammatory ones - in 21.6% of cases. The frequency of hygienic visits to dental offices decreases from 47.8% to 19.7%.

At the age of 10-11 years, the frequency of anticaries and fluorescein is not high, respectively: 36.1% and 35.6%. The use of toothpastes with anti-inflammatory therapeutic effect was 21.2%, which is at the same level as the previous age group of schoolchildren. And in this group, there was also a sharp decrease in the use of hygienic teeth at a low level of 8.2%.

According to the survey results, children aged 6-7 had toothpastes and toothbrushes (60%) of their children. At the age of 8-9, 32.4% of children choose their toothpaste based on mass media and recommendations of the school dentist. Most children aged 10-11 (53.7%) have access to hygiene products.

Information received at school and the results of health education work led to the conscious use of low-level fluoride anticaries preparations.

The conducted studies indicate a sufficient level of knowledge of many parents and ix children about the methods and means of oral care, which explains the low level of oral hygiene in the observed groups of children. During the survey, 50.3% of parents did not know about the possibility of preventing the development of dental caries by timely caries prevention measures. Parents did not know about the existence of caries prevention programs and methods of preventing dental caries. The low level of hygienic culture indicates insufficient awareness and extensive sanitary and educational work of pediatric dentists among parents and children. Under these conditions, it is possible to predict the development of a caries-causing

situation in the oral cavity in children, leading to a high prevalence of dental caries and periodontal diseases. Based on the information obtained, individual oral hygiene lessons, caries prevention measures for children and, if possible, with the involvement of parents were developed and conducted.

Under physiological conditions, saliva is a supersaturated solution in terms of calcium and phosphorus. Therefore, the physical properties of mixed saliva have a significant impact on the homeostasis of hard dental tissues. However, in modern literature, devoted to narrowing the mineralization potential and biophysical characteristics of saliva are few and they are contradictory, and in Uzbekistan, such studies are not conducted.

One of the sections of the dissertation is devoted to the study of the properties and composition of mixed saliva in schoolchildren during the period of eruption of permanent teeth and formation of roots. The dynamics of changes in oral fluid that contribute to the development and establishment of a cariogenic situation in the oral cavity of young schoolchildren were studied.

When studying the mineralizing potential of oral fluid (MPS) in 90 children of primary school age, it was found that only 18 (20%) had a high and very high level of MPS, corresponding to 16 (17.8%) and 2 (2.2%) schoolchildren.

Satisfactory type of crystallization of oral fluid was revealed in 21 (23.3%) of the examined children. It should be emphasized that in the smaller half - 39 (43.3%) of those examined during the period of eruption of permanent teeth there were high, very high and moderate levels of MPS, and in the majority of children - 51 (56.7%) - low and very low MPS were determined. It should be noted that the ratio of children with low and very low MPS was basically at the same level and corresponded to: 30.0% and 26.7% of cases. Probably, this is due to the fact that the age period - 7 years - the first eruption of permanent teeth occurs, and by the time of 10-11 years, basically all permanent teeth have erupted, so the age period is under threat. loss of permanent teeth due to caries.

The results of the TEP test study showed that only 18 (20.0%) of 90 schoolchildren were diagnosed with a high level of dental enamel, while the remaining 72 (80.0%) children had a different level of dental enamel. Only 24 (26.7%) of the examined children were found to have moderate CR (MCR), 27 (30.0%) - low CR (LCR), and 21 (23.3%) children - overt low CR (OLCR).

Most studies of children (56.7%) have low or very low resistance of teeth to the impact of the slot, which predicts the development of multiple dental caries. When analyzing the results of the study of MPS, it was found that there are different levels of caries resistance of tooth enamel, and in 50.0% of cases, high levels of MPS were observed in the enamel of the VKR; v 11.1% - open MPS of a high level and the remaining 38.9% - satisfactory; children with low or open low MPS did not wander.

When studying at the MPS and secondary school (UKR), children with a predominance of school (71.4%) had an average level, average (2.1-3.3 points) MPS, low (1.1-2.0 points) MPS was established - 19.0%, high (3.1 -4.0 points) level was noted only by 9.9%. There are no schools of open high and open low level MPS.

In the NCR of tooth enamel, low MPS was detected in 51.8% of cases, and satisfactory in 25.9% of cases; open low MPS was registered in 22.2% of cases; high-quality MPS is not available.

In the fourth group of children with ONCR of tooth enamel, the prevalence of low and very low MPS was established, respectively 50.0% and 37.5%; satisfactory MPS – 12.5% of cases; high and very high MPS were completely absent.

Analysis of the obtained data shows that the function of tooth enamel mineralization is impaired at different levels of resistance to caries, and the potential for saliva mineralization is expressed in the enamel of teeth with low caries resistance and low caries resistance.

A direct correlation is revealed between the studied indicators of the enamel CR and the MPS, so that a decrease in one of the indicators can lead to a deterioration in health, that is, they are interdependent.

The analysis of the obtained data on the study of biophysical properties of oral fluid in primary school children shows that with NCR and ONCR of tooth enamel, the specific weight of children with increased goiter and low salivation rate increases. Also in the 3rd and 4th groups, an increase in viscosity by 3.2 ± 0.14 ($P < 0.05$), which corresponds to 3.51 ± 0.12 ($P < 0.05$), and the rate of background blood flow was observed.

Increased salivation in the 2nd group corresponds to an average of $0.35 - 0.05 \pm$, which is within the lower limit of the norm, in the 3rd group there is a decrease of $0.31 - 0.05 \pm$, and in the 4th group there is a favorable decrease of 0.30 ± 0.01 .

The results of the study showed that the buffer capacity of mixed saliva in the 3-explained group was almost normal and only in the 4th group was there a tendency to a sufficient decrease in the NCR and its value was 8.1 ± 0.59 ($P < 0.05$).

When studying the acidity of oral fluid in groups 1 and 2 of teeth with enamel of the upper and lower granite levels, the average pH of the oral fluid was 7.18 ± 0.05 and 6.93 ± 0.11 . Fluctuations in pH levels with mixed saliva and normal values. In group 3 with the enamel index of the upper granite level corresponded to the lower granite norm and averaged 6.69 ± 0.04 . In group 4 with enamel of the teeth of the lower granite level, the pH was significantly reduced and amounted to 6.60 ± 0.03 ($P < 0.05$).

Therefore, the study of MPS, pH, SSS and the severity of oral fluid in primary school children has a prognostic value for the development and establishment of a cariogenic situation in the oral cavity in children during the period of eruption of permanent teeth. The KOSRE test is a clinical indicator of the rate of enamel remineralization and the possibility of rapid remineralization of saliva, as well as changes in the age period.

The study of the KOSRE test indicators depending on the enamel caries has shown that in groups 1 and 2 with high and low caries of tooth enamel, this indicator is within the norm. In schoolchildren of groups 3 and 4 with low and low caries of

tooth enamel, it is significantly higher than the norm 3.6 ± 0.5 ; 3.9 ± 0.3 corresponds to caries of tooth enamel.

In this case, a conclusion can be made, since in teeth with enamels NKR and ONKR there is a lower potential of mixed saliva compared to teeth with enamels VKR and UKR. The established changes in the biophysical properties of mixed saliva lead to the buffer density of the blood and the level of oral fluid, background blood flow and speed, which indicates the presence of an increased cariogenic situation and the risk of caries development. in permanent teeth after caries.

According to A.R. Pozdnev (1993), with a mineralizing potential of saliva up to 2.0 points, clinically active dental caries is observed. There are no moderate and high values of MPS, buffer bone and oral fluid calcium content in schoolchildren, which characterize the high compensatory and caries-protective capacity of saliva and the normalization and restoration of the corresponding conditions and condition of the mouth in children. In addition, it was found that the features of the mineralizing potential of saliva and its biophysical properties can provide an assessment of the prospects for caries-preventive measures.

Next, we studied cariogenic microflora using the example of mutans str . , since this representative is one of the markers of the risk of developing caries, has acid-producing properties and plays an important role in the development of caries.

ul . mutans constantly forms acid, is able to reproduce and survive in an acidic environment. ul . mutans secretes a special substance, is able to stick to the tooth surface and promote the formation and development of plaque, is an indicator of cariogenicity of plaque and oral fluid. The study of this microflora showed that this is a small colony of VKR and UKR. ul . mutans were not detected in oral fluid. With NKR, non-white colonies of ul . mutans were found in oral fluid in 29.7% of children , this is 41.5% of low-level pathogenicity, 28.8% - high pathogenicity. In children with ONKR, the study of ul . mutans showed that 24.9% of the observed colonies were found with this microflora, 31.5% showed a low level of pathogenicity and 43.6% - a high level of pathogenicity.

The study of the concentration level of pathogenic microorganisms *Str . mutans* in dental plaque in children with NCR enamel revealed that in 9.1% of cases colonies of *Str . mutans* with a level corresponding to high pathogenicity were found in the area of 4,5,6 teeth on the left on the upper jaw. Neither on the right side only, nor on 3-4 teeth (7.3%). But there is no lower jaw of the flight, mainly on 5-6 teeth and 8.7% of cases, on the right on 5 teeth in 6.9% of cases of the lower jaw. The presence of pathogenic levels of *Str . mutans v* was established - 76.2% of cases and the upper jaw; on the lower - in 59.8% of cases.

The study of the concentration of cariogenic microflora and soft dental deposits located on the vestibular surface of the teeth established a fairly high level of pathogenicity of *Str . mutans* , when comparing high concentrations and mixed slen. Thus, colonies of *Str . mutans* with a high level of pathogenicity in children with NCD of enamel were found in 38.2% of cases. A low degree of pathogenicity in -36.7% and only in 25.1% of cases in the colony of *Str . mutans* were not found. In children with NCD in enamel, colonies of *Str . mutans* with a high degree of pathogenicity were established in 53.7% of cases. A low level of pathogenicity of this cariogenic microflora was established in 37.2% and only in 9.0% of cases caries-pathogenic colonies were not found.

Thus, the concentration colony of cariogenic microflora *str . Mutans* has a high level of pathogenicity in baby and soft teeth, and compared with the level and mixed saliva, most children have NCR and ONCR enamel. Moreover, in children with enamel NCR, *str . mutans* with a high and low level of pathogenicity - 38.2% and 36.7%, respectively, and 74.9% of pathogenic microflora.

In ONCR enamel colony of *ul . mutans* with high pathogenicity level is relatively higher than with low pathogenicity level, which corresponds to 43.7 and 37.2% of cases. In the total number of examined children colonies with high pathogenicity index of this microflora, established in two teeth - in 22.5%, in three-four - in 29.2% and in one tooth - in 14.5% of cases. The obtained data indicate that in colony with high pathogenicity level *ul . mutans* are found in dental plaque not on

alleys of tooth surfaces, but at the base on 2-3-4 teeth located in lateral surfaces of both upper and lower jaws, therefore, to obtain more reliable data in dental plaque examination for presence of microflora, pathogen level of necessary dental plaque examination of all examined teeth. The presence of abundant dental plaque with a high level of pathogenicity of microflora indicates that oral hygiene is provided to children at an unsatisfactory level, and sometimes is completely absent. Accordingly, in schoolchildren with NCR and ONCR of tooth enamel, the risk of developing multiple dental caries lesions and establishing a cariogenic situation in the oral cavity is predicted, which requires immediate use of active anti-caries treatment and preventive measures.

The analysis of the data obtained in the study of biophysical properties of mixed saliva, the dynamics and changes in the enamel of the NKR and ONKR, the establishment of the position of the MPS, buffer capacity, acidity and viscosity, as well as their combination with an increase in the colony. str . mutans with high levels of pathogenicity, with a low level of GI, and mineralization of hard tissues of animals, during the formation of the IX roots, shows a very high risk of caries development and usuli for establishing a cariogenic situation in the oral cavity in children. The simultaneous action of many factors, the formation of caries and the fixation of caries in caries, lead to an increase in the mineralization potential of saliva, the rate of bleeding (according to the KOSRE test), indicate a violation of the physiological mechanisms of caries development. self-healing layer. A vicious circle of pathogenetic links in the development of dental caries appears, mutually conditioning, aggravating the pathogenicity of each link separately.

Based on the development of the study of the obtained data characterizing the pathogenetic relationship of the identified factors in the development of dental caries, an algorithm was built that explains the relationship between the main pathogenetic links in the development of dental caries in children.

During the study, more than 20 risk factors for the development of dental caries were identified (Fig. 4.2.2), of which 8 main ones were identified: MPS, buffer

capacity, acidity (pN), decreased SSS, increased viscosity of mixed saliva, the presence of increased cariogenic microflora, *Str . mutans* , increased GI, and disruption of the physiological processes of self-cleaning of the oral cavity in children.

The frequency of occurrence of 8 risk factors for caries development was analyzed. The analysis showed that none of the identified facts were found in children with high risk factors of enamel. In high risk enamel, factor 1 occurs in 21.2% of parts, i.e. an increase in GI, in low risk enamel - in 4 factors - 32.1%, in 6 factors - 46.7% of parts, and in 8 - 21.2%. In low risk enamel, 4 factors accounted for 5.3%, 5 factors - 7.1%, 6 factors - 49.4%, and all 8 factors - 38.2%.

In my opinion, in NCR many children (67.9%) have 6 and 8 factors of caries development. In 32.1% of children with NCR enamel there are only 4 markers of risk of dental caries development, and in one child 1, 2, 3 markers were not detected. In ONCR, the majority (94.7%) were simultaneously found to have more than 4 markers of risk of caries development, there are 5, 6, 8 factors.

It is known that the correct selection of a set of personal and professional hygiene products is especially important for children during the period of tooth root formation, which is a key stage in caries prevention.

The program, created for the treatment and preventive group, includes: dental training, 2-3 training sessions on oral hygiene, an oral hygiene brush, controlled oral hygiene, and preparation of teeth for fluoride.

When treating a carious area according to Black, the standard necrotomy method is used: the first treatment is anticaries prophylaxis, the second is the treatment of caries (medium and deep) of the molars and premolars of the upper and lower jaws.

Based on the combination of treatment and preventive anti-caries measures, an algorithm for the program for the first group of children with VKR of tooth enamel has been compiled.

The second program of the complex of anti-caries treatment and preventive measures for children with UCR of tooth enamel consisted entirely of the stages of the 1st program + a procedure in the form of deep fluoridation preparations Gluftored fissures and pits of the chewing surface of teeth. Preventive measures, professional hygiene practice 2-3 times a year, active and high-quality methods of dental education, motivation of children and parents to self-help are the key points of the second program.

For the 3rd preventive group, the 3rd program was created (children with the NCR "Emal"), where the full volume of the second program was added to the complex, such as exogenous and endogenous methods of prevention and treatment of dental caries, the algorithm was created for the third stage of the program of anti-caries treatment and preventive procedures.

For children with enamel deficiency in groups 3, it is necessary to provide enamel attachment using combined methods, both locally and nutritionally. Together with a pediatrician, children in this group were additionally prescribed calcium preparations in the form of liquid calcium, 1 tbsp 2-3 times a day after meals, and multivitamins were prescribed. Of the exogenous preventive measures, the following were added: determining the level of intellectual, physical and socio-economic status of the child and his family (OIFSE); teaching the child the semi-method of a household hygienic brush controlled by a brush - a professional hygienic brush 4 times a year. Additional hygiene products are recommended (floss, tongue brush, interdental brush, mouthwash, irrigator, chewing gum) for cleaning hard-to-reach interdental spaces, mandatory use of fluoride toothpaste of at least 500 ppmE every 1.5-2 months. and rotation with calcium-containing toothpastes for the same period for 1 year.

To strengthen the enamel of the teeth of the upper and lower jaws, the lower jaw was divided into three parts and deep fluoridation with Gluftored was performed 1-2 times with a weekly interval of 7-10 days. performed.

Treatment of dental caries was carried out not by the standard method of preparation, but by a minimally invasive method. For this method, a caries detector is used, 0.1% fuchsin is used to stain the pathological lesion of hard dental tissues, the necessary staining is carried out several times, after removing the lesion, the carious layer is remineralized by the method of deep fluoridation according to the instructions of Glufluored. It is necessary to conduct 2-3 sessions of the course of treatment, which are repeated 2 times with an interval of 1 week. And then the carious cavity is sealed with SIT Arion Molar ATs, which contains silver, has a bactericidal effect, and the active fluoride ions in its composition provide a remineralizing effect up to 2 times.

For the 4th group of children with ONKR tooth enamel, the 4th and more comprehensive program of complex anti-caries treatment and preventive measures has been created. The program includes the full volume of the comprehensive program "3-ey" plus additional treatment for the elderly, including exogenous use of fluoride in the form of a video application of 2% sodium fluoride solution for 2 months, daily use of calcium-containing paste and 4 weeks after using fluoride-containing toothpaste, the course of treatment involves the use of 10% calcium gluconate solution, rinsing with 0.01% sodium fluoride solution 2 times a day for 1 month. Increase the layer of professional hygiene 4-6 times a week until 2-3 months after the show. And endogenous treatment is added with probiotics for the growth of intestinal and colon microflora.

For children of the 4th group, it is recommended to conduct additional 4-6 classes in the field of hygiene, constant monitoring of acquired skills, development of stable skills and a high level of hygienic knowledge, consolidation and improvement, the method of medical and health-improving measures, pedagogical persuasion, the method of medical and pedagogical persuasion and dentistry.

Algorithm 4 of the software complex of anti-caries treatment and preventive measures for children with ONCR of the teeth.

When comparing the increase in caries intensity by the indices KPUz and KPUy in the treatment groups, an increase in caries intensity is noted for both studied indicators with a decrease in the CR of tooth enamel. With NCR and ONCR, tooth enamel is significantly higher, and the intensity of caries increases sharply.

When comparing the growth of caries intensity in the treatment and control groups, a fairly significant decrease in caries intensity is observed in the treatment groups compared to the controlled groups, which are in natural conditions. Thus, when comparing the growth of caries intensity with the KPUz and KPUy indicators, a sharp difference in the growth of caries and the carious surface between the main and control groups is observed.

When comparing the growth intensity, ± 1 treatment group and 1 control group were identified, since in the control group the caries growth intensity was compared with the reference value for 3 months \pm . Whereas in the treatment group there is no increase in the determined indices. After 6 months, the increase in caries intensity in the main group is $0.02-0.002 \pm$, in the main group - $0.03-0.01 \pm$, and in the control group it reliably exceeds the level of $0.07-0.01 \pm$ and $0.14-0.09 \pm$, which, accordingly, the difference is reliable ($P < 0.05$).

When comparing 2 treatment and 2 control groups, it was found that the increase in caries after 3 months in the main group was $0.01-0.002 \pm$ and $0.04-0.01 \pm$, and in the control group $0.06-0.012$ and $0.01 \pm$.

After 6 months of treatment, the increase in caries intensity was $0.03-0.01 \pm$ and $0.05-0.01 \pm$, while in the control group it was significantly higher: $0.08-0.03 \pm$ and $0.09-0.04 \pm$, respectively.

In 3 groups of children with NKR enamel, the intensity of tooth growth was noticeably high after 3 and 6 months of treatment, both in the main group, in the control group, and in the main, in the main, in the control group. group (Table 5.1.5).

In the fourth group of children with ONCR of enamel, the intensity of caries growth 3 months after treatment was determined as comparable to that in the 4th

control group, the index of KPUz was 0.15, ± 0.04 , and KUUp - 0.18, ± 0.02 compared to the control 0.31 ± 0.05 , respectively, which is 2.06 times higher than in the main group, KPUp - 0.39 ± 0.07 , which is 2.17 times higher than in the main group.

A comparative study of these indicators 6 months after treatment showed an increase in caries intensity after KPUz 0.17 ± 0.03 and after KPUp 0.19 ± 0.05 , which is significantly lower than in the control group, equal to KPUz 0.42 ± 0.06 , which is higher than in the main group and 2.47 times higher than KPUp - 0.45 and ± 0.09 , in the main group 2.37 times higher.

Thus, the obtained results indicate the effectiveness of the use of differentiated programs of the complex of therapeutic and preventive anti-caries measures for children. The conducted studies showed the need for a differentiated, targeted approach to the treatment of dental caries and children with different levels of CR of tooth enamel. When comparing the intensity of dental caries growth in the group of treatment of different levels, the intensity of growth of tooth enamel CR is higher than that of tooth enamel NKR and ONCR, in a favorable and positive effect of the treatment.

Based on the days obtained, in the case of younger chipped growth, when providing dental care, it is necessary to begin treatment immediately after determining the level of CR of tooth enamel, the established level of CR will make it possible to select a differentiated selenium-directed y comprehensive program of anti-caries, therapeutic and preventive measures.

A fairly significant increase in initial carious lesions in schoolchildren indicates open, poor-quality and irregular hygienic care, which leads to more serious pathogenetic changes and the development of deep carious lesions.

Despite the fact that the control group included children with enamel varicose veins and NICS, and in the absence of long-term oral hygiene and other caries-preventive measures, an increased incidence of goiter caries disease was noted.

In the second group of children, when using the comprehensive treatment and prevention program No. 2 in the photo, children with UCR tooth enamel are exposed, and the increase in the growth of dental caries is 2^{-x} let, no significant. The increase in caries and the total index of teeth over the period was 0.03 ± 0.01 , in contrast to the control group - 0.64 ± 0.07 , and the carious surface - 0.30 ± 0.02 , in the control group - 0.92 ± 0.03 . A significant increase in caries corresponds to the small and 2 treatment and prevention groups, which is 2.1 times. The data obtained once again indicate the need for constant monitoring of training and therapeutic and preventive dental measures even in children with VCR and UCR tooth enamel.

In the 3rd group of children with NKR enamel, a corresponding course of complex treatment and preventive program No. 3 was carried out.

In this group of children the following changes are observed: initial carious lesions of teeth, index d_{1-3t} increased slightly by 1.1 times from 0.06 ± 0.02 to 0.07 ± 0.02 . In mountain blood in the control group a reliable increase of 1.5 times was noted, and compared to 3-year treatment it was 1.4 times greater. Surface index d_{1-3c} increased in the 1st group by 1.1 times, in the control group by 1.3 times and more by 1.2 times.

The obtained data indicate the effectiveness of the applied course of treatment and prevention program No. 3. The same character of minor caries damage for all other studied indicators was observed during 2^{years} after the course of treatment and prevention program and as a result, an increase in caries was noted for the total index of teeth (d_{4-6mFt}), which is 0.37 ± 0.01 and the surface area is 0.34 ± 0.03 . The increase in caries in the mountain group and the control group was 0.64 ± 0.03 and 0.92 ± 0.05 , respectively, and 1.8 and 2.7 times more than in the control group.

Analyzing the obtained results, it can be noted that the treatment of caries in the 1PM with unformed roots in children of primary school age showed different efficiency in therapy with different methods. The quality of fillings from traditionally used silicophosphate cements in children was unsatisfactory, complications of varying severity were observed, which is confirmed by the

literature data verified by B.V. Kotomina (1997), A.I. Nikolaeva (1998), L.V. Rutkovskaya (2004) and others [3,6,7,8] also received low-quality lead. It should be noted that significantly low ($P<0.01$) treatment indicators were obtained at all study periods. Both after 3-6 months and in the long-term periods, 24 months in subgroup 1 with the traditional treatment method. The most frequent weakening in treatment with this method was the development of secondary caries. In second place is the violation of the marginal fit of the filling $22.3\pm 2.7\%$ and the violation of the anatomical shape of the filling $12.3\pm 1.8\%$ (Table 6.8).

The study of the total number of unsatisfactory fillings revealed a large number of complications after filling in the 2nd subgroup with the traditional method, at all times a sharp increase in complications is observed compared to the new method today. For example, after 6 months the number of unsatisfactory fillings is 7.9 ± 1.5 , after 12 months 24.1 ± 2.3 , which is 5.6 times higher, and after 24 months 6.7 times higher.

Thus, a comparative assessment of the methods of treatment and filling of caries of the 1st PM during the period of formation of tooth roots and incomplete mineralization of hard dental tissues showed a sufficiently high clinical effectiveness of the minimally invasive method of preparation using the SIT "Argion Molar AC" in comparison with traditional methods and the use of glass ionomer cement "Cemion".

CONCLUSIONS

1. For children of primary school age, dental treatment should begin immediately after determining the level of caries in the enamel of the teeth and, on this basis, select a differentiated, targeted set of anti-caries treatment and preventive programs.

2. In children of primary school age, during the period of formation of root teeth and incomplete mineralization of enamel, a high prevalence and intensity of dental caries is observed.

3. A decrease in MPS, viscosity of the CCC, buffer bone and concentration of St. mutans in oral life with the growth of caries was revealed.

4. The dynamics of changes in TER, COSRE and MPS at a low level of hygiene indicate that the mineralization of teeth is not complete, tooth enamel is not mineralized, tooth enamel is formed.

5. Minimally invasive caries treatment method is useful for improving the quality of caries treatment and is the most effective and psychologically efficient transfer method.

6. For children of primary school age and their parents, it is necessary to increase the motivation for hygiene culture by conducting hygiene lessons and teaching oral hygiene products and methods.

7. The computer program developed during the study will help in choosing a set of anti-caries treatment and preventive measures.

8. The developed algorithms of complexes of anti-caries treatment and prophylactic programs for the prevention and treatment of permanent teeth in children contribute to increasing the effectiveness of treatment, prevention of caries and its complications at various levels of CR of the hard tissues of teeth.

9. The proposed algorithm for conducting hygiene classes for children with different levels of resistance to caries will be useful for professional practice.

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