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Clinical Picture and Characteristics of the Course of Children's Caries

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Abstract. Dental caries is considered as a multifactorial polyetiological disease caused by the contact of cariogenic microflora between themselves and the body, truly dependent on the type of feeding, the development of pregnancy, the timing of teething, ecological consistency, hereditary predisposition and from the diseases experienced in the first year of an individual's life. The scale of the spread of carious disease after eruption is predetermined by the infantile enamel of the teeth and the domination of cariogenic factors, most with insufficient hygiene, the consumption of an abundance of carbohydrates and a meager intake of fluoride.
Keywords. Dental caries, cariogenic factors, xylitol, Diplen F, decompensated.

Oral hygiene is an important factor influencing the development of caries. Thorough and regular brushing of teeth can partially compensate for the effect of other factors (early infection with Str. Mutans and excessive consumption of easily fermentable carbohydrates) [1].

However, many parents believe that there is no connection between the health of temporary and permanent teeth and therefore do not pay due attention to oral hygiene [2]. It should be borne in mind that young children do not need to take care of their teeth, this procedure should be carried out for them by adults [3]. It is important that parents start brushing their children's teeth in a timely manner. Even before the first teeth appear, mom or dad needs to clean the child's mouth with a napkin moistened with boiled water or a rubber fingertip. About six months, when the first teeth erupt, it is necessary to start using a soft baby brush, which should be changed every 3 months, and a paste with calcium content. Brushing your teeth is necessary in the morning before breakfast and in the evening after the last meal [4].

For regions where fluoride is endemic in water, fluoride pastes can be used. However, the recommendations on the age at which these funds can be used and the dosages are not the same in different countries and organizations (this issue is covered in more detail in the subchapter on the role of fluorine compounds). It is important that parents gradually impart knowledge and lay the foundations of hygienic education in accordance with the child's age in order to develop first a habit, and then later, to form a persistent skill of brushing teeth [10, 11]. Starting from 2.5-3 years of age, many children begin to brush their teeth themselves, however,

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due to immaturity of motor skills and the lack of persistent skill, the child will not be able to fully and correctly carry out oral hygiene on his own. There is a need for parental control and assistance in brushing teeth [5].

It should be borne in mind that the family's lifestyle, hygiene habits and knowledge of the dental health of parents are a factor directly related to the possibility of caries development in their children [6].

To date, experts have proposed a variety of methods, measures and means for the treatment, prevention of dental caries [13, 15]. According to modern research, xylitol has proven itself as a natural sweetener that does not ferment and therefore cannot be absorbed by bacteria. The ability of xylitol to inhibit the adhesion of pathogenic microorganisms to the surface of the teeth, to block the reproduction and formation of acids of pathogenic microorganisms, to reduce the titer of S. mutans in saliva and dental plaque is confirmed by some experimental studies [1, 12]. At the same time, the scale of research does not provide a reason for widespread introduction of xylitol. This is contradicted by the results of the use of xylitol in young children [10], the authors have achieved a decrease in the increase in the intensity of dental caries by 86.7% [5]. Works by WalshL. J. are devoted to the effect of ultraviolet rays on biofilm [15].

There are data on the use of triclosan and chlorhexidine - agents aimed at the effect of the bacterial factor, but their use in the practice of a pediatric dentist is difficult [5]. Other authors also disagree with this: with the application of 40% chlorhexidine varnish, a decrease in the growth of caries to 38% was achieved [8]. At the same time, a systematic review of the literature showed that the evidence for the caries-prophylactic effect of chlorhexidine varnish in children was inconclusive [5]. Artyunov et al. Recommend using for children a polymer film "Diplen F" containing a complex of sodium fluoride and chlorhexidine. The effectiveness of application and caries-static effect were proved by the authors, combining "Diplen F" with toothpaste "R.O.C.Sbaby" [4]. Studies have shown that the local application of calcium-phosphate-containing agents "R.O.C.S. Medical Minerals ”within two years allows to achieve a significant reduction in the growth of dental caries in children [10]. To restore the areas of enamel demineralization and increase its caries resistance, calcium, phosphate and fluoride preparations are used, contained in a solution of calcium gluconate, remodente, GCToothMousse. The effectiveness of a beneficial effect on the hard tissues of the tooth is estimated by the reduction of the growth of caries by 50-60% [14]. GCToothMousse is not used in patients with a history of allergy. The positive effect of the remineralizing gel "BelagelSa / R", developed by the company "Vlad Miwa", is demonstrated by the works [7].

Caries can have a significant effect not only on the condition of the dentition, but also on general somatic health in general [8].

As a result of the progression of caries, the occurrence of pain can lead to a decrease in the child's ability and unwillingness to drink, chew, there is a restriction in the choice of foods (sour fruits and vegetables, solid food), loss of appetite. Malnutrition can lead to weight loss, iron deficiency, and stunted growth and development.

Painful sensations from caries can lead to a decrease in the quality of life: disturbed sleep, concentration and mood of the child. In conditions of multiple tooth decay, complications (pulpitis, periodontitis) are possible. Misunderstanding due to early age and lack of necessary contact with the child sometimes becomes necessary to sanitize the oral cavity of children (especially up to 3 years) under general anesthesia [3].

With the progression of caries, which inevitably leads to the death of the pulp and the

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development of inflammation in the periapical tissues, damage to the rudiments of permanent teeth is possible. Premature extraction of deciduous teeth can lead to the formation of dentoalveolar anomalies and a lack of space for permanent teeth. The early loss of such teeth can lead to disruption of the normal development of the language and difficulties in phonetics [9].

Depending on the prevalence and localization, according to the foreign classification, there are 3 types of early childhood caries [2]:

S I type (mild form) is characterized by the presence of isolated carious lesions on the incisors or molars (more common at the age of 2 to 5 years);

S II type (moderate form) - lesions are localized on the vestibular and palatal surfaces of the maxillary incisors and temporary molars;

S III type (severe form) - the presence of multiple carious cavities is characteristic of almost all teeth, including the incisors of the lower jaw (more common in children from 3 to 5 years old).

A characteristic feature of caries in milk teeth is the spread of the carious process along the plane, as well as rapid, sometimes lightning-fast progression from one form to another [6]. The earlier a child has the first carious lesion, the more likely multiple lesions of all remaining teeth are.

For an early age, children are characterized by a decompensated and aggressive course of caries in milk teeth, which leads to the rapid destruction of their crowns. In children under 3 years of age, the inability to determine the location and expression of pain leads to the absence of complaints. As a result of late treatment, both local and general complications develop [14,

15]. The presence of caries in children inevitably leads to a high risk of new carious lesions not only in milk teeth, but also in permanent teeth.

Quite recently, in order to prevent dental caries in children, they began to introduce probiotics, the positive properties of which are the ability to normalize the microbial landscape due to the production of bacteriocin, adhesion retarders [12], and according to SookheeS. [4], inhibit the growth of cariogenic bacteria.

A significant contribution to the inadmissibility of the development of carious disease is played by fluorine ions, which was reflected in earlier studies [15]. The ability of fluoride recovery is manifested in the foci of destructive enamel, if the content of this trace element in the oral fluid is 0.1 mg / liter. At low values of this microelement in drinking water, the desired concentration cannot be achieved. Therefore, endogenous and exogenous prevention of dental caries is especially relevant in endemic areas [18]. Pastes [13], rinses, gels, varnishes, foams [16] are offered as an external source of fluoride in accordance with all kinds of prevention schemes, including the active use of non-invasive and invasive sealing of fissures. In the literature, all kinds of ways of endogenous use of fluorine are proposed by enriching drinking water, salt, milk with it, or taking sodium fluoride tablets inside as prescribed by a doctor. The effectiveness of the method is assessed by the reduction of caries by 50-60%, but due to the cumulative effect, prolonged use on a regular basis is important [14].

Local application of fluoride-containing agents involves the use of toothpastes, fluoride-containing varnishes: Duraphat, Bifluorid 12, FluorProtector, gels: NurpoAPF, Elmex, Silcot varnish, FluocalGel, Fluor-Dose varnish, sodium fluoride solutions for rinsing and for applications, enamel-hermitisation. The effectiveness of the method is estimated by the reduction of caries by 30-40% [14]. Application of 0.2% fluoride in liquid form in the form of application is listed as a common, affordable and proven method of treatment and prevention of dental caries

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[7]. The fluorination method based on fluorine-containing varnish is widely used [9]. It is this form that is most convenient when working with young children. According to Maslak EE, as a result of applications using ColgateDuraphat varnish in children under five years of age, after nine months, the foci of demineralization stabilized in 80% of cases, the depth of foci of carious lesions significantly decreased - by 76% [6]. However, it is important to personify the amount of fluoride with a focus on the child's year of life and the content of this compound in the drinking water of the region, in order to achieve a balance between the risk of fluorosis and caries-static effect.

At this time, the use of fluoride pastes in children is regulated by professional communities in different ways. There is no approved basis for dosage, volumes and age qualifications, based on which the predicted effect of using pastes with microdoses of fluorine [1] does not exist. The US Centers for Dental Disease Control and Prevention (CDCP) allows fluoride toothpaste to be used by children up to two years of age. A little earlier - from one and a half years, the use of a fluoride paste is allowed by the Australian Research Center for Dental Health [19]. The European Academy of Pediatric Dentistry [16], the Scottish Intercollegiate Information Organization (SIGN), the German Dental Organization (DGK), and the American Academy of Pediatric Dentistry [18] suggest the use of fluoride pastes when a child's first tooth has erupted. Specialists in the national recommendations of the community of pediatric dentistry in Britain and the WHO consider the real use of drugs containing fluoride and do not establish an age range. In areas with insufficient saturation of fluoride ions in drinking water (less than 0.3 mg / l) [5], in accordance with the requirements of professional dental associations, European and American unions, the integrated appointment of systemic and local fluorides for the prevention of caries in children. However, the possibilities of using and the confirmed data on the usefulness of restorative therapy for caries in early childhood have not been sufficiently developed. Taking into account the peculiarities of the initiation, development and course of caries in young children, it is urgent to develop and introduce a method based on reducing the formation of dental plaque, inactivating pathogenic microbial communities, in the scheme of prevention and treatment of dental caries in the most vulnerable population. In New Zealand, the development of the Caries Prevention Program is based on the study of the level of hygiene knowledge of women and their training in personal oral hygiene [14]. A review of numerous foreign sources has shown the mandatory training of pediatricians in the main issues of the prevention of dental diseases [9].

Thus, the analysis of literature data showed that dental caries in children is a multifactorial economically and socially significant health problem, which requires a systematic, detailed approach. An assessment of the strength and degree of exposure to risk factors for this disease should be carried out in the conditions of a particular patient, taking into account the stage of development and age characteristics of the structure of milk teeth, as well as exo- and endogenous circumstances.

Some of the risk factors for the development of caries in milk teeth are associated with more or less objective circumstances (the state of the environment, the level of general somatic health of the mother, the course of pregnancy and childbirth), therefore, "attempts to influence them by the forces of patients" and the dentist are restrictive, only some of their correction is possible ... However, a large group is occupied by risk factors that completely depend on the behavior of the child and his parents (diet, oral hygiene, motivation to maintain dental health, etc.) and can be minimized both by the dentist and by self-help measures.

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Conclusion. The well-known disunited and antagonistic research on the timing of teething, as well as the polyetiological nature of the impact on the development of an aggressive course of dental diseases, dictates the need to consider regional and ethnic features of the course of caries in young children, taking into account a differentiated approach in order to develop and implement a prevention program. At the same time, it is these factors that will be the main objects that determine the volume and focus of therapeutic prophylactic measures.

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