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Features of Dental Caries in Young Children: Epidemiology, Etiology, Prevention, Treatment

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Abstract
Caries in children is a special disease that has a complex multifactorial nature of multifaceted interaction. Assessment of the strength and degree of influence of risk factors for the development of the disease should be carried out in the specific condition of the patient, taking into account the stage of development and age-related structural features of the baby's teeth, as well as exogenous and endogenous conditions. Since some of the risk factors for caries are more or less related to objective conditions, attempts by "patients" or dentists to influence them are limited and can only be partially altered. However, large groups consist of risk factors that depend on the behavior of the child and his parents, and to minimize them both by the dentist and by self-help efforts.In this case, these factors are the main purpose of determining the scope and focus of treatment and preventive measures.

Keywords: Baby teeth, pediatric caries, risk factors, treatment and preventive measures.

Introduction

Epidemiology of caries in Children Caries remains the most common chronic disease in the pediatric population [4]. According to world statistics, the majority of the structure of this disease is caries of the teeth of babies of children under 6 years of age [10]. In general, the prevalence of caries in young children varies greatly - from 17 to 94%. The prevalence in developed countries (Western Europe, the United States), according to various estimates, is 1-12%, and in developing countries it can reach 99% [14, 27]. In the United States, the prevalence of children between the ages of 2 and 5 has increased by 10% over the past 15.2 years, with 2% of 8.4 and 5% of about 44 years old having at least 1 tooth decay or tooth jammed [18]. Among Brazilian children, caries affects 1% of 26.8 and 3% of 46.8 years of age [18]. In Iran, the prevalence of these age groups is 19.5% and 44%, respectively [11]. In Germany, the number of teeth affected by caries at 6 years old is almost 12 times that of teeth at 2 years old [15]; In a 2007 Japanese national survey, 18% of 2.8-month-olds and 3% of 25.9-year-olds were affected by tooth decay [13, 28]. It is worth noting that the prevalence of molars caries increases with the age of the child: if you compare children 6 and 1 years old, the prevalence of caries increases by 7 times. At the same time, this indicator increases sharply from the age of 1 to 3 years (5 times). Similar results are observed when assessing the intensity of caries in artificial teeth.If you compare 6-year-olds with 1-year-olds, this indicator increases by 17 times. It is also characterized by the largest increase in the age group of 1-3 years [15]. The structure of hard tissues and features of the clinical picture of false tooth caries.

Studies by domestic and foreign authors have shown that baby teeth in children are more susceptible to caries than permanent ones, which is associated with the anatomical and physiological features of the structure and development of hard tissues [4, 15]. A characteristic feature of baby teeth is the thin thickness of enamel and dentin (compared with permanent teeth) and a low degree of calcification; -The cavity of the tooth has a considerable volume, the highest position (pulp angle) is located near the junction of enamel and dentin; -Morphologically and functionally immature pulp is hardly able to form replacement dentin at the stage of formation of milk teeth [25]. The hard tissue of the newly cut crown is immature. Full maturation (tertiary calcification) occurs during the first year after the eruption of the baby's teeth. The relatively "mature" enamel layer is in the stage of structural and functional stability. But over time, defects appear on the outer surface caused by external factors (mechanical, chemical, temperature, etc.).Weakens the resistance of the tooth, making the tissues beneath it vulnerable to the development of caries, accelerating and slowing its progression [2, 4, 14]. In addition, the imperfection of the structure of the hard tissues of the baby's teeth may be associated with the presence of non-carious lesions, genetic disorders, and the appearance of congenital and acquired abnormalities in the alveolar bone, which are also risk factors for the development and progression of childhood caries [15]. In this regard, temporary caries has a specific clinical picture that differs from permanent caries according to the anatomical and physiological features of the structure of hard tissues, the time of occurrence and the age model of the development of the child [11, 13]. Caries damage to incorrect teeth often coincides with the order of their eruption. In the first years of life, the upper incisors and canines are often affected (the so-called "bottle caries"). Depending on the stage of eruption, the place of caries may be different. With incompletely erupted teeth, caries are limited to the central vestibular or palatine surface of the crown, spreading "in strips" to other surfaces or completely covering only 1 or more surfaces in the form of "flat lesions" [16, 17]. [16, 17]. By the age of 2, biting teeth are affected. Caries occurs in the area of pits on the occlusal surface and in the vestibular area of the vestibular surface, where there is a low mineralization and dental deposits. There is also an approximate localization of caries in the chewing group of teeth. In severe caries, the buccal surface of the maxillary molars may be affected [17, 19]. The mandibular incisors are most resistant to the progression of caries, as they are washed with saliva from the hyoid bone and submandibular glands and protected from the tongue and lips [15, 28]. According to foreign classifications, depending on the prevalence and localization, childhood caries can be divided into 3 types [12]:-Type S I (mild) is characterized by the presence of isolated caries lesions on incisors or molars (most common at the age of 2-5 years). - Type S II (moderate) is characterized by damage to the anterior and palatine surfaces of the maxillary incisors and temporary molars. -Type S III (severe) is characterized by the presence of multiple caries in almost all teeth, including the incisors of the lower jaw (most often it occurs at the age of 3-5 years). A characteristic feature of caries of baby teeth is that it spreads along the plane and passes rapidly from one form to another, sometimes at lightning speed.[15] The sooner a child develops the first tooth decay lesion, the more likely it is that multiple lesions will occur on all the remaining teeth. Caries of the baby's teeth in childhood is characterized by rapid destruction of the crown, which leads to the progression of caries.In children under 3 years of age, there are no complaints, since it is impossible to determine the place and severity of pain. As a

result of premature treatment, local and systemic complications develop [14, 15, 26]. Consequences of caries In young children, caries can have a significant impact on the dental system, as well as on general health [10, 18]. Pain caused by the progression of caries reduces the child's ability to drink, the desire to chew, limits the choice of food (sour fruits and vegetables, solid foods), reduces appetite. Malnutrition can lead to weight loss, iron deficiency, and stunted growth and physical development [15]. Pain caused by caries can lead to poor quality of life, including sleep disorders, concentration and mood in children [14]. With multiple caries, complications may occur (pulpitis, periodontitis). Due to the young age and lack of contact with the child, misunderstandings can occur, which can lead to the need to disinfect the child's oral cavity under general anesthesia (especially between 3 and 10 years old) [13]. Progressive caries inevitably leads to the death of the pulp, inflammation of the surrounding tissues, and possible damage to the growth of the roots of permanent teeth. Early removal of the baby's teeth leads to the formation of dental abnormalities and the lack of space for permanent teeth. Premature loss of these teeth can interfere with the normal development of speech and lead to difficulties in pronunciation [10, 19]. As a result of aesthetic and phonological problems, the child can be teased and offended by other children, which can adversely affect self-esteem and lead to further social maladjustment. The child can be withdrawn and unwilling to smile, which contributes to limited communication with peers [16, 18]. The presence of caries in early childhood does not necessarily increase the risk of developing new caries lesions in both permanent and molars [10, 14]. The risk factor for the development of caries in the classical sense is a chronic infection caused by malnutrition. The main "players" in the pathogenesis of the disease are carious microorganisms, substrates in the form of incoming carbohydrates, and hosts (resistance of the body and tooth enamel) [14]. Childhood caries is a special form of caries that has a multifactorial nature, R.This is a systematic review of the international literature from 1966 to 2002 by Harris et al. A systematic review of the literature revealed 106 risk factors for the development of caries in infants [13]. Six groups of microbiological factors, hygienic factors, dietary factors, factors related to the feeding regime, sociodemographic factors and other factors were identified. Caries-generating microflora. 1. One of the most important etiologies in the development of caries is the acid-producing microflora of the oral cavity. Normal microflora at birth is represented by lactobacilli, non-hemolytic streptococcus and non-pathogenic staphylococcus [11, 24]. Ingress of the oral cavity by carious flora occurs in everyday life through the saliva of the mother, father, or other people who surround and care for the child [13, 15]. The transmission of microorganisms occurs during the "tasting" of food, when they "wash" with mannequins, toys, kisses, etc., through mannequins moistened with saliva. Such transmission often occurs in childhood through the so-called "window of infection", but can occur early or late in life [10, 15]. The main participants in the development of caries, including in children, are acid-forming microorganisms, in particular Streptoccocus mutans (Str. mutans)[14,21]Str. Mutans have many pathogenicity and contribute to the deposition of plaque matrix and further plaque growth, both extracellular and intracellular Streptoccocus mutans have a unique sugar transport system (phosphoenol pyruvate phosphotransferase) and are resistant to acidic environments, unlike many plaque microorganisms. In addition to Str, it supports sugar metabolism in low pH environments. Mutans lactobacilli play an important role in the pathogenesis of tooth decay in young children. An increase in the number of lactobacilli in the

oral cavity in children may be associated with frequent carbohydrate intake. At the stage of plaque accumulation and demineralization of the enamel layer, Str. Mutans predominate in saliva [14]. As caries progresses and clinical manifestations of the disease develop, with the formation of fossa defects, the predominance passes to lactic acid bacteria [14]. Lactobacilli have a rather low adhesion, they are only mechanically fixed in the dent of the tooth. However, due to the joint aggregation with various other symbiotic microorganisms, especially peptostreptococci in the oral cavity and microaerophilic streptococci, lactobacilli can be very firmly fixed to the surface of the teeth and the thickness of the plaque [15]. In the presence of carbohydrate foods, lactobacilli produce a large amount of lactic acid and other acids that contribute to the progression of caries. At the same time, lactic acid bacteria act as an important stabilizer in the formation of oral microflora. Lactic acid bacteria synthesize vitamins B and K, which are necessary for the development of other bacteria and the entire body. Given the complex and diverse composition of plaques, it should be noted that other microorganisms contribute to the development of caries, but Streptoccocus sanguis, Streptoccocus salivarius and Streptoccocus milleri, Actinomyces Viscosus and Streptoccocus wiggsiae [17]. In the case of caries in childhood, the age of infection with these microorganisms is important: from 3 years old, and in some cases, at an early stage, the social circle of the child expands and begins to attend preschool institutions. Communication with peers, shared toys and dishes leads to the exchange of microflora in the team, which is another risk factor for the development of caries [1] [13]. Nutrition and diet. The progression of caries requires regular and frequent consumption of fermentable carbohydrates from food and beverages [5, 14]. The main sources of nutrition for newborns and infants are breast milk or milk, milk mixtures and water. The effect of breast milk and its substitutes on the development of caries in children is controversial [18]. The unanimous opinion is that the risk of developing caries in young children is constantly increased in the presence of other concomitant factors (for example, insufficient oral hygiene, early infection with caries microorganisms, sweet taste of water) Violations of the natural feeding regime (prolonged night feeding, continuous feeding, calming the child's crying by "giving" the breast) increase the risk of caries [11]. Another important risk factor at this age is that the child consumes sweet drinks, especially compotes and juices, before bedtime and at night. The researchers point out that the only drink that should be given to a child before going to bed should be water [19]. As children grow up, their taste preferences change and the range of products they consume expands. During this period, the taste preferences of the family, especially the mother, play an important role for the child, and he begins to put on his own taste buds [17]. In families where sweet food is consumed regularly, children are more likely to consume fermented carbohydrates. Children's eating habits become habitual in adulthood and may increase their chances of developing tooth decay in both permanent and molars [18, 23]. Oral hygiene of children. Improper oral hygiene care leads to the accumulation of plaque on the surface of the tooth, which leads to the formation of plaque. Previously, it was believed that most of the plaque consists of food residues, but in fact it consists of 70% of microorganisms (1 mg of plaque contains 1 billion).In the early stages of plaque formation, it consists mainly of cocci flora, the number of filamentous fungi and Veillonella increases due to its development [14]. In the presence of food, especially sugars and fermentable carbohydrates, caries-generating microorganisms begin to produce organic acids. These substances contribute to the initiation of the enamel demineralization

process [15, 17]. The negative attitude of parents to dental treatment can be communicated to children [12].

Conclusion: Lack of knowledge about dental health, lack of interest in mothers and fathers, and lack of confidence in maintaining dental health inevitably lead to an increased risk of caries in children If parents monitor their child's oral hygiene, limit the consumption of sugar-containing products, recognize the first pathological changes in teeth early and seek timely dental treatment, the risk of caries prevalence and intensity in children can be significantly reduced [21]. However, in the practice of dentists, it is difficult to assess all the risk factors for the development of childhood caries, the effects of which are proven in the literature [15]. At the same time, not all factors have the same intensity and degree of influence on the launch of the pathological process, but there are differences in the combination of factors at different age stages of the child and the degree of their symptoms.

References:

1. Абдуллаева П. Р., Ахмедов А. А. СПОСОБ ЛЕЧЕНИЯ ИШЕМИЧЕСКИХ СОСТОЯНИЙ ЗРИТЕЛЬНОГО НЕРВА И СЕТЧАТКИ (ЛИТЕРАТУРНЫЙ ОБЗОР): Medical science //Ethiopian International Journal of Multidisciplinary Research. – 2023. – Т. 10. – №. 09. – С. 18-23.
2. Ризаев Ж. А., Ахмедов А. А. ОСНОВЫ СТОМАТОЛОГИЧЕСКОЙ ПОМОЩИ В РЕСПУБЛИКЕ УЗБЕКИСТАН НА ОСНОВЕ РАЗВИТИЯ ОБЩЕЙ ВРАЧЕБНОЙ ПРАКТИКИ //ЖУРНАЛ СТОМАТОЛОГИИ И КРАНИОФАЦИАЛЬНЫХ ИССЛЕДОВАНИЙ. – 2023. – Т. 4. – №. 3.
3. Абдуллаева Н. И., Ахмедов А. А. ОСТЕО-ИММУНОЛОГИЧЕСКИЙ СТАТУС ПАЦИЕНТОВ С ЗАБОЛЕВАНИЙ ПАРОДОНТА В ПОДРОСТКОВОМ И МОЛОДОМ ВОЗРАСТЕ //TA'LIM VA RIVOJLANISH TAHLILI ONLAYN ILMIY JURNALI. – 2023. – Т. 3. – №. 11. – С. 143-149.
4. Ахмедов А. А. Иммунологические аспекты патогенеза гингивита и пародонтита //IQRO. – 2023. – Т. 3. – №. 2. – С. 121-123.
5. Ризаев Ж. А., Ахмедов А. А. GROWTH AND DEVELOPMENT OF GENERAL MEDICAL PRACTICE IN THE REPUBLIC OF UZBEKISTAN TO IMPROVE DENTAL CARE //ЖУРНАЛ СТОМАТОЛОГИИ И КРАНИОФАЦИАЛЬНЫХ ИССЛЕДОВАНИЙ. – 2023. – Т. 4. – №. 3.
6. Ахмедов А. А., Нарзиева Н. DENTAL PROSTHETICS ON IMPLANTS AND THEIR FEATURES //American Journal of Pedagogical and Educational Research. – 2023. – Т. 16. – С. 132-135.
7. Astanovich A. D. A. et al. The State of Periodontal Tissues in Athletes Engaged in Cyclic Sports //Annals of the Romanian Society for Cell Biology. – 2021. – С. 235-241.
8. Alimjanovich R. J., Astanovich A. A. СОВЕРШЕНТСВОВАНИЕ СТОМАТОЛОГИЧЕСКОЙ ПОМОЩИ В УЗБЕКИСТАНЕ С ИСПОЛЬЗОВАНИЕМ КОНЦЕПТУАЛЬНОГО ПОДХОДА ДЛЯ УЛУЧШЕНИЕ ЕЕ КАЧЕСТВА //JOURNAL OF BIOMEDICINE AND PRACTICE. – 2023. – Т. 8. – №. 4.

9. Ортикова Н. Глобализация биоэтики в период пандемии COVID-19 //Общество и инновации. – 2020. – Т. 1. – №. 1/S. – С. 677-682.
10. Ортикова Н. Влияние психоэмоционального напряжения детей на состояние здоровья полости рта //Общество и инновации. – 2023. – Т. 4. – №. 7/S. – С. 328-333.
11. Ортикова Н. Х., Ризаев Ж. А., Мелибаев Б. А. ПСИХОЛОГИЧЕСКИЕ АСПЕКТЫ ПОСТРОЕНИЯ СТОМАТОЛОГИЧЕСКОГО ПРИЕМА ПАЦИЕНТОВ ДЕТСКОГО ВОЗРАСТА //EDITOR COORDINATOR. – 2021. – С. 554.
12. Ортикова Н. Тенденция эффективности профилактических мероприятий путем коррекции психологического стресса у детей на стоматологическом приёме //Общество и инновации. – 2022. – Т. 3. – №. 6. – С. 181-189.
13. Qobilovna B. Z., Nodirovich E. A. EVALUATION OF ORTHOPEDIC TREATMENT WITH REMOVABLE DENTAL PROSTHESES FOR PATIENTS WITH PAIR PATHOLOGY //Spectrum Journal of Innovation, Reforms and Development. – 2023. – Т. 11. – С. 95-101.
14. Anvarovich E. S., Qobilovna B. Z. INFLUENCE OF DIFFERENT TYPES OF RETRACTION THREADS ON THE DEGREE OF GINGI RECESSION //Spectrum Journal of Innovation, Reforms and Development. – 2023. – Т. 11. – С. 84-86.
15. Tohirovna M. L., Qobilovna B. Z. Optimization of Complex Methods Treatment of Inflammatory Periodontal Diseases //Eurasian Research Bulletin. – 2023. – Т. 17. – С. 138-143.
16. Tavakalova Q. M., Qobilovna B. Z., Sarvinoz Y. Preventive Measures in the Treatment of Caries in School children //Eurasian Research Bulletin. – 2023. – Т. 17. – С. 60-65.
17. Исламова Н., Чакконов Ф. Роль продуктов перекисного окисления липидов и противовоспалительных цитокинов крови в развитии заболеваний полости рта при гипотиреозе //Общество и инновации. – 2020. – Т. 1. – №. 1/s. – С. 577-582.
18. Fakhriddin C., Shokhruh S., Nilufar I. ENDOKANAL PIN-KONSTRUKSIYALARNI ISHLATISHDA ASORATLAR VA XATOLAR TAHLILI //JOURNAL OF BIOMEDICINE AND PRACTICE. – 2022. – Т. 7. – №. 1.
19. Shoxrux S., Shoxrux I., Faxriddin C. PREVENTION AND TREATMENT OF ORAL INFECTIONS IN DENTURE WEARERS //International Journal of Early Childhood Special Education. – 2022. – Т. 14. – №. 4.
20. Xusanovich C. F. COMPLETE REMOVABLE PROSTHESIS SUPPORTED BY IMPLANTS //European International Journal of Multidisciplinary Research and Management Studies. – 2023. – Т. 3. – №. 11. – С. 127-133.
21. Xusanovich C. F. et al. PROSTHETICS A COMPLETE REMOVABLE PROSTHESIS BASED ON IMPLANTS //European International Journal of Multidisciplinary Research and Management Studies. – 2023. – Т. 3. – №. 11. – С. 122-126.
22. Najmiddinovich S. N. et al. CARIES IN SCHOOL CHILDREN AND TREATMENT PREVENTIVE MEASURES //American Journal of Pedagogical and Educational Research. – 2023. – Т. 16. – С. 44-49.
23. Khusanovich K. B. R. C. F. TYPES AND APPLICATIONS OF DENTAL COMPLIMENTS //Journal of Modern Educational Achievements. – 2023. – Т. 5. – №. 5. – С. 95-99.

24. Zarnigor J. MAIN ROLE OF HYGIENIC EDUCATION IN THE SYSTEM PRIMARY PREVENTION OF DENTAL DISEASES OF PATIENT //European International Journal of Multidisciplinary Research and Management Studies. – 2023. – T. 3. – №. 11. – C. 157-163.
25. Qizi J. Z. B. METHODS OF OPTIMIZATION OF TREATMENT OF PERIODONTAL DISEASES USING NEW TECHNOLOGIES //European International Journal of Multidisciplinary Research and Management Studies. – 2023. – T. 3. – №. 10. – C. 234-241.
26. Kobilovna B. Z., Rushana R. COMPARATIVE EVALUATION OF PARTIAL DENTURES WITH VARIOUS FASTENING ELEMENTS //Intent Research Scientific Journal. – 2023. – T. 2. – №. 9. – C. 98-103.
27. Qobilovna B. Z., Maxzuna U. Improvement of Providing Therapeutic Dental Care to Pregnant Women. Therapeutic and Preventive Measures //Eurasian Research Bulletin. – 2023. – T. 16. – C. 146-150.
28. Tavakalova Q. M., Qobilovna B. Z., Sarvinoz Y. Results of the Prevention Program Dental Diseases in School-Age Children //Eurasian Research Bulletin. – 2023. – T. 17. – C. 50-54
29. Jurabek T. D., Qobilovna B. Z. Principles of Prevention of Dental Diseases in Children in Modern Conditions //Eurasian Research Bulletin. – 2023. – T. 17. – C. 55-59.
30. Tavakalova Q. M., Qobilovna B. Z., Sarvinoz Y. Preventive Measures in the Treatment of Caries in School children //Eurasian Research Bulletin. – 2023. – T. 17. – C. 60-65.