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# Principles of Prevention of Dental Diseases in Children in Modern Conditions

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## ABSTRACT

The occurrence of dental caries in children is inextricably linked with the negative impact of cariogenic factors: unbalanced diet, high carbohydrate content in food, poor oral hygiene, environmental violations and preventive measures.

### Keywords:

dental caries

**Relevance.** The occurrence of dental caries in children is inextricably linked with the negative impact of cariogenic factors: unbalanced diet, high carbohydrate content in food, poor oral hygiene, environmental violations and preventive measures. Modern equipment, new technologies and treatments cannot protect the pediatric population from the development of new cavities. Even calls for more thorough testing and prevention are not 100 percent accurate. The relevance of the prevention of dental diseases is characterized by their high prevalence among children and adolescents. In particular, caries and periodontal disease lead to tooth loss and become a focus of chronic odontogenic infection. Insufficient attention to the prevention of dental diseases, especially in recent years, contributes to their development and aggravation of the course of the disease. During the period of transition to market relations in the Republic of Uzbekistan, the situation of preventive care for children has deteriorated significantly. We analyzed the interaction of risk factors for the development of dental caries in children in Samarkand and indicated that their frequent consumption of sweets and carbonated drinks, the use of sweets

in between meals, undoubtedly damages the teeth. Therefore, schools should actively introduce the concept of "food culture" from the point of view of dentists. In this case, it is recommended to take liquids, vegetables, salads as the last meal.

**Material and methods:** Dental caries in children of key age periods varied: a survey of children aged 6-12 years revealed the prevalence of caries from 80% to 82%, with an intensity of 2.2 to 2.6; in children 6-7 years old, the prevalence of caries in temporary teeth is from 60% to 76.3%, with an intensity of 1.5 to 2.0. Despite ongoing periodic measures for the sanitation of the oral cavity, the incidence of caries decreased slightly. Our clinical observations have established that already at the age of one, children have the so-called "nursery" caries. In the vast majority of cases, children do not have control over the state of their teeth by their parents, the abuse of sweet and sticky foods. The prevalence of caries in 12 years on average in Uzbekistan reached 85%, and the intensity was 2.3. Periodontal disease was observed in 60-70% of 12-year-old

children. Dental anomalies occurred in 69% of the examined children.

**Research results:** In modern conditions, the critical situation with the dental health of children requires attention not only from specialists, but also a great responsibility falls on parents and caregivers, who must ensure that the teeth and oral cavity of the child are cleaned from the moment they erupt. At the age of 3 years, the child should be able to independently perform elementary movements with a toothbrush, and the task of educators is to control their implementation. At the same time, due to unsatisfactory knowledge of the basics of hygienic education and upbringing, parents, educators, and teachers have withdrawn themselves from preventive measures among children. In Russia, in order to provide targeted assistance, it is proposed to create preventive centers. In the conditions of Samarkand, on the basis of existing medical institutions, it is possible to create a center for prevention, where not only preventive measures should be carried out, but also their coordination, planning, control and audit. According to foreign authors, the greatest effect of prevention is observed where the dental hygienist deals with this matter. Efficiency of work is estimated by improvement of hygiene, stabilization or reduction of carious teeth. Means for the creation of prevention centers can be found in the improvement of the work of the dentist and its restructuring. At first, it makes sense to abandon continuous prophylaxis of the oral cavity for children from year to year as they apply, instead of it - to conduct them planned at key ages. The key ages of children are - 6, 12, 15 years. At the same time, children can receive urgent dental care as soon as they visit a doctor. This method of prevention involves the separation of therapeutic and preventive work, while increasing the effectiveness of preventive measures. Based on work experience, we offer tables for assessing dental status and methods for determining the effectiveness of preventing dental caries in children. Practical use of the method of organizing medical and practical care according to Vinogradova T.F. difficult due to the numerous risk factors taken into account,

which do not always reflect the tendency to caries due to fluctuations in indicators, and the method itself is difficult to perform. Therefore, various options for prevention methods have been proposed. In European countries, they recommend the prevention of common diseases and the promotion of a healthy lifestyle, hygiene education and upbringing of children, the fight against microorganisms, the improvement of preventive measures and the level of dental health. The executors of the proposed preventive measures are dental hygienists. Leus P.A. (1990) recommends healthy lifestyle habits for children and their parents, sugar control, and fluoride dental treatment. When analyzing the interaction of caries risk factors in children, attention is drawn to the frequent use of sugary drinks by children, the constant snacking of sweets between main meals. Sugar intake influenced the X-ray diffraction pattern of saliva crystals by replacing fluorine with a hydroxyl group. Therefore, when carrying out preventive work, considerable attention should be paid to sanitary and educational work. On the basis of the work carried out, we have established that a preventive effect was observed when using ozonized water, as well as taking into account the timing of eruption of permanent teeth. The prevalence of caries in children at the age of 10 varied from 88.8% to 97.5%, with intensity from 3.9 to 5.9, and with a low level of oral hygiene not only in children, but also in their parents. When analyzing the intensity of caries in permanent teeth in children aged 7 years ( $n = 160$ ), its fluctuation was found at the level of  $-0.38 - + 0.05$ , with a prevalence of 16.6%. In children aged 16, the same figures were respectively - 1.23 and 52%. We also conducted a study of the anti-caries effect of fluorides on permanent teeth, depending on the period of teething ( $n = 140$ ). The follow-up period was 2 years. It was found that the intensity of caries is 2 times lower than in the control group (0.98 and 0.44, respectively). Our observations have shown that the prevention of dental diseases in children, taking into account the period of eruption of permanent teeth, gives a significant decrease in the incidence, compared with the control group. In children, the use of this method of caries prevention is more effective in

regions with an optimal fluorine content in the water. Promising in the prevention of diseases of the oral cavity was the use of ozonized solutions. Ozone inactivates microorganisms, has a bactericidal property. Therefore, ozone solutions improve oral hygiene and contribute to the prevention of dental caries and periodontal disease. We conducted a comparative study of the effect of caries prevention with fluorides in children with permanent teeth, depending on the period of eruption (n=140). In the control group, the same activities were carried out according to the method of T.F. Vinogradova (n=122). The duration of the study was 2 years; it was found that during prophylaxis, taking into account the period of eruption of permanent teeth, the intensity of caries was 2 times lower ( $0.98 \pm 0.12$  and  $0.44 \pm 0.05$ , respectively). Repeatedly surveyed children of preschool age from 2 to 6 years. The results of an epidemiological study of preschool children in Samarkand in 2021-2022 indicate the mass prevalence of caries in all age groups. Considering the dynamics of the prevalence of caries in preschool children in Samarkand, some of the following features can be distinguished: 1) The prevalence of dental caries in preschool children, according to our data, was 68.1%; 2) The need for dental treatment is high - 68.1%, which is apparently due to the lack of a centralized method of sanitation of children, and parents most often bring children to the children's dental clinic with acute pain; 3) Increase in the prevalence of caries in comparison with the indicators for the period 2012 and 2013. observed at a younger age (from 2 years to 3 years) by 1.9 times. All children, after their hygienic training, cariogenic zones of temporary teeth were covered with fluoride preparations three times during a 2-week examination in 2021. At the control examination after 1 year in 2022. in these children, the appearance of new carious cavities was not noted. Some parents have the opinion that the prevention of caries in children should be started from the age of 5-6, we consider this statement to be erroneous: we unambiguously adhere to the opinion that care for the teeth of children should begin from the moment they erupt. The features of the prevention of caries in

permanent teeth include the systemic sealing of fissures of the first permanent molars, since up to 80% of carious lesions of the teeth in children fall on these teeth. In the drinking water of Samarkand with a normal content of fluorine in water, endogenous introduction of fluorine-containing preparations is not required. In regions with a low content of fluorine in water ( $0.3-0.4 \text{ mmol / l}$ ), the child receives a sufficient amount of fluorine inside due to an increase in water intake in a hot climate.

**Conclusion:** The study of the state of dental health of children in various regions of the country, in particular the city of Samarkand, taking into account the epidemiology of caries and the state of dental care in Uzbekistan, allowed us to formulate the following recommendations for practical healthcare:

- 1) For the introduction and regular maintenance of systemic comprehensive prevention of dental caries in children, it is necessary to organize the training of specialists with secondary specialized education - dental hygienists;
- 2) Preventive measures for schoolchildren should be carried out during critical periods of growth and development of teeth, in the so-called key age periods - 6, 12, 15 years. During these years, erupt, the formation of permanent teeth continues. The division into preventive groups is carried out depending on the average incidence for a given age and locality. The healthy group consists of children with the lowest caries values;
- 3) There is a need to organize through a directive document of the Ministry of Health and the Ministry of Education of Uzbekistan on the prevention and treatment of children in schools by dental hygienists and dentists. For this purpose, it is possible to use a powerful reserve of dentists, of which there are more than 1000 in the country. Conducting oral hygiene lessons should be included in the schedule of classes with the participation and involvement of children's parents. Our observations have shown that the prevention of dental diseases in children, taking into account the period of eruption of permanent teeth, gives a significant decrease in the incidence, compared with the

control group. In children, the use of this method of caries prevention is more effective in regions with an optimal fluorine content in water;

4) Promising in the prevention of dental diseases was the use of ozonized solutions. Ozone inactivates microorganisms, has a bactericidal property. Therefore, ozone solutions improve oral hygiene and help prevent dental caries and periodontal disease;

5) A comparative study of the effect of the applied fluorides on the prevention of caries in permanent teeth in children, depending on the timing of eruption in schoolchildren (n=140), was carried out according to the method of T.F. Vinogradova (n=122). The duration of the study was 2 years. At the same time, it was found that when carrying out preventive measures, taking into account the period of eruption of permanent teeth, the intensity of caries was 2 times lower (0.98+0.12 and 0.44+0.05, respectively); 6) Examined 614 preschool children from 2 to 6 years old in the Almaly district of Samarkand revealed that the prevalence of dental caries in preschool children was 69%, while the prevalence of caries in temporary teeth increased from 2 to 6 years by 2 times; the need for dental treatment is high (about 80%), which is apparently due to the lack of a systematic centralized method of sanitation of the oral cavity in children.

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