

DIAGNOSIS AND PREVENTION OF CARIES IN ADOLESCENTS

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Relevance. Caries remains a significant problem in most developed countries of the world, affecting from 60 to 90% of schoolchildren and the vast majority of the adult population. Dental caries is most common in Asian and Latin American countries, where the incidence of children and adults is approaching 100%. In addition to cariesogenic factors that constantly and continuously affect the hard tissues of the teeth, leading to the demineralization of enamel, there are protective mechanisms (composition and properties of saliva, fluorides) that can shift the balance towards the remineralization process. Thus, the carious process can be stopped and even reversed if the integrity of the hard tissues of the teeth is preserved.

The process of caries development consists in shifting the balance between cariesogenic and protective factors: if cariesogenic factors prevail in the oral cavity, then the process of demineralization dominates, if protective, then remineralization is triggered and the development of caries stops. Alternation of cycles of de- and remineralization can occur for a long time before reaching the "end point" – the formation of a carious cavity. The fact that the development of dental caries is a dynamic process and reversible at the initial stages is of particular importance in the treatment and prevention of caries, and early diagnosis of lesions allows for timely prevention and treatment of focal demineralization. The topic of caries detection at the earliest stages of development is currently receiving a lot of attention. To replace the traditional visual diagnostic methods (drying, vital staining), researchers around the world are increasingly using modern international criteria for assessing the degree of carious lesion.

Toothpastes with a higher concentration of fluoride (1500-5000 ppm) are recommended for patients with a high risk of developing caries. Hygiene products with a low fluoride content (500 ppm) are prescribed to children under 6 years of age in order to prevent and balance the risk of caries and the risk of fluorosis. Numerous studies prove that the incidence of dental caries correlates with a low level of oral hygiene and poor-quality brushing of teeth. It is argininolytic bacteria that break down arginine to an ammonium base, which is able to neutralize plaque acids and stabilize the microbial balance of dental biofilm [4]. Thus, increasing the pH of plaque creates a favorable environment for stopping demineralization and

starting remineralization, preserving the ecological balance in the microbial biofilm and providing it with a "healthy microflora" [1.3.4].

A number of clinical studies involving patients who used arginine containing toothpaste (study group) showed that in the study group the pH of plaque was significantly higher than in the control group, where patients used toothpaste with 1100 ppm fluoride. An increase in the pH of plaque occurs due to the splitting of arginine and the formation of an ammonium base, which leads to the neutralization of the acidity of plaque, and calcium and fluoride, which are part of the toothpaste, participate in the process of remineralization of hard tissues in an environment safe from cariesogenic acids [2.4].

Conclusion. The diagnostics of caries in the early stages of QLF showed that the use of toothpaste with 1.5% arginine, 1450 ppm fluoride and insoluble calcium compound (study group) more effectively stabilizes demineralization and stimulates remineralization of hard tissues of teeth compared with pastes containing only 1450 ppm fluoride (control group). The analysis of the volume of initial carious lesions (ΔQ) after 6 months of using arginine-containing toothpaste was 44.6% less than during the initial examination, while in the control group ΔQ was 28.9% less than during the initial examination, respectively. The difference in indicators between the new oral hygiene product and positive control was statistically significant.

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