

RISK FACTORS FOR THE DEVELOPMENT OF CARIES IN YOUNG CHILDREN

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Abstract

Predicting and assessing the risk of dental caries in children is a pressing issue in modern paediatric dentistry worldwide, including in Uzbekistan. Significant progress has been made in the prevention of a number of diseases, and the aetiology and pathogenesis of virtually all dental diseases have been well studied. However, even in developed countries such as the United States, Japan and Western Europe, the prevalence of caries in permanent teeth remains at 50% [3,6].

Introduction

To date, the search for highly effective methods of preventing early childhood caries and effective treatments that promote a positive attitude towards visiting the dentist in children remains unresolved.

Caries in young children was recognised by dentists as a significant problem more than a century ago. Back in the 1930s, Beltrami called this disease 'black teeth in very young children.' In 1962, Fass proposed the term 'bottle mouth' for this disease. The literature used the terms 'bottle syndrome,' 'night bottle mouth,' 'baby bottle tooth decay,' and 'breast milk tooth decay.' Parents could not understand the benefits and risks of bottle feeding or breastfeeding. In this regard, at a conference of the Centre for Disease Control and Prevention (1994), the term 'early childhood caries' was proposed to reflect the multifactorial nature of the pathogenesis of this disease [2,8].

Before birth, the oral cavity of the foetus is sterile. In the first days of a child's life, streptococci are the only microorganisms that are detected and isolated from the oral cavity of a newborn, and at the age of up to 1 year, they account for 70% of the total microflora [2].

The main oral streptococci are *S. salivarius*, *S. sanguinis*, *S. mutans*, *S. mitior*, and *S. Sobrinus*. Early infection with *S. mutans* is the greatest risk factor for CDI, as well as future dental caries: the earlier the infection occurs, the higher the intensity of caries in primary teeth.

Infection can occur vertically or horizontally. The vertical route is the transmission of microorganisms to a child from an adult caring for them, most often from the mother, and the horizontal route is from brothers, sisters, or other children. The ability of *S. mutans* in the oral cavity





is determined by the number of colonies transmitted, the frequency of transmission, the ability of microbial cells to adhere, the 'age' of the tooth, the amount of carbohydrates consumed, and the properties of the organism that determine its sensitivity to microorganisms [1,7].

An important pathogenetic factor contributing to the development of caries in young children is a disturbance in the nature and regime of nutrition (carbohydrate factor). Infancy is a period of intense physical, neuropsychological and intellectual development in children, which requires adequate conditions, including breastfeeding.

Breastfeeding is the basis for the proper physical development and health of a child. The advantages of natural feeding are due to the unique composition of breast milk, which contains all the nutrients a child needs, a large amount of biologically active components and protective factors, including hormone-like substances, vitamins, regulatory peptides, interleukins, growth and tissue differentiation factors, etc.

Dentists point to a clear correlation between the susceptibility of temporary teeth to caries and the nature of a child's feeding at night—the time when immunological defences in the oral cavity are at their lowest. During this period, favourable conditions for the development of caries are created due to slowed salivation (and, accordingly, a decrease in the buffering and remineralising properties of saliva), the absence of natural self-cleaning and a decrease in the pH of oral fluid as a result of prolonged contact with fluids that have cariogenic potential in relation to hard tooth tissues. The more sugars there are in the oral cavity, the more active the microorganisms in dental plaque are. It has been established that after consuming carbohydrates, the mineralising properties of saliva are disrupted, as the crystallisation processes change, leading to an increase in the activity of the carious process. Breast milk contains β -lactose. This sugar has a low cariogenic potential, but its frequent and prolonged presence in the mouth, especially at night, also contributes to a decrease in the pH of dental plaque and demineralisation of hard tooth tissues [3,4].

In the postnatal period, factors that can reduce caries resistance include complications during childbirth, asphyxia, hypotrophy, haemolytic disease of the newborn, sepsis, acute infectious diseases, decreased immunological reactivity, chronic diseases, in particular of the ENT organs, iron deficiency anaemia, rickets, allergies, and early artificial feeding[5].

It has been established that unfavourable socio-economic factors are associated with a lack of interest in adequate oral hygiene, limiting the consumption of cariogenic foods, and timely and regular visits to the dentist. Hygienic care for primary teeth should begin as soon as they erupt. At the first stage, this may involve wiping with a gauze pad moistened with boiled water, special xylitol wipes ('Spiffies'), cleaning with a silicone finger brush or a traditional toothbrush. The quality of the procedure is important.

Primary postnatal caries prevention in early childhood and preschool age consists of health and hygiene education, normalisation of diet, and early preventive visits to the dentist. It is one of the pressing issues in modern dentistry, requiring more effective strategies. At the individual level, caries prevention largely depends on personal oral hygiene in the form of brushing teeth with fluoride toothpastes selected by a dentist.





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