

# Modern Concepts of the Causes of Development, Prevention and Principles of Treatment of Dental Caries in Children

Rahmatova Dilnora Saidjonovna, Xojiyev Dilmurod Yaxshiyevich

Bukhara State Medical Institute Named after Abu Ali Ibn Sino, Uzbekistan

**Abstract** Dental caries is the most common chronic disease among the child population. Caries of milk teeth occupies a special place in the structure of this pathology. Despite the improvement in the quality and expansion of the volume of preventive and therapeutic measures, the level of intensity and severity of early childhood caries in our country and the Perm region in particular remains at a very high level. There are more than a hundred reasons contributing to the development of carious process in milk teeth. Of these, the most important are socio-demographic, biological, dietary, hygienic and factors related to the type of feeding. In this case, the consolidation or weakening of the action of such in a number of circumstances will determine the emergence and further development of early childhood caries. In the classical sense, dental caries is a chronic infectious disease induced by a violation of diet.

**Keywords** Dental caries, Physiological, Multifactorial polyetiologi cal disease, Dentoalveolar system, Carbohydrates

## 1. Introduction

Insufficient sanitation of the oral cavity and initiation of inflammatory processes affect the nature of life of the individual and the immediate environment lead to functional disorders, destabilize the neuropsychiatric status of children [15], exacerbation of chronic infections [7] and social economic consequences. Early loss of teeth is accompanied by an occlusion disorder, prevents the formation of speech, and an increase in the feeling of inferiority. Casamassimo P. S. et al. Documented the interdependence between RDC and cases of non-fulfillment of the range of duties by parents [5], including it in the list of diseases equated to child abuse [2].

Dental caries is considered as a multifactorial polyetiologi cal 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 [18], ecological consistency, hereditary predisposition [9] and from past diseases 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 dominance of cariogenic factors, most with insufficient hygiene [11], the consumption of an abundance of carbohydrates and a meager supply of fluorine [8]. Some authors suggest economic, behavioral and psychosocial reasons for consideration: RPC

is mostly formed in children living in poor conditions and in an unhealthy economic climate, from among national and racial minorities [14].

A number of researchers separately consider passive smoking as a fundamental factor that critically affects the formation of immature tooth structures [6,3]. Expert judgment reveals an irrefutable link between exposure to toxic vapors and high values of carious disease in children under three years of age [8]. A direct relationship between the high coefficient of efficiency in young children and the intelligence quotient of parents, especially with the incompetence of women, has been proven. Other researchers have focused their attention on the composition of the family: children in single-parent families have a strictly higher CPU, since high-carbohydrate foods are more often prevalent in their diet. In support of the social welfare of the family, Wigen T. I. established an interesting fact: children with both parents and / or one older brother brush their teeth more often than children raised by one of the parents [12].

Teething is directly related to the development of caries resistance in children. It has been confirmed that the teeth with inconsistent crystal lattice due to advanced eruption of carious disease are mostly sloping teeth. Timely and consistent teething reflects the normal somatic development of organs and systems [8].

There are conflicting points of view and extensive scientific research on the timing of teething.

According to the research of T. Ye. Zueva, in children with a history of general somatic diseases, frequent colds, the start of teething was recorded at 6.3 months; in children with

rickets - three months later [3]. The vast majority of studies prove the second order of dentition in the upper jaw [13]. However, ChoN studies contradict this. K. et al., The authors established the fact of a different order of teeth eruption: the penetration of the gums on the lower jaw occurred later than the upper one [3]. Violation of the order of eruption of teeth is stated by authors studying the effect of rickets on the sequence of eruption. The somatic state of a woman, the antenatal and postnatal period of a child's life, ethnographic and territorial features provide the variability in the timing and order of teething [5,2]. Al-JasserN. M. et al. when assessing the timing of teething, insists on the advisability of assessing the value of fluoride ions in drinking water, depending on the area of residence [13]. The influence of vitamin D deficiency is also important.

Clinical cases of the birth of children with already erupted teeth or the fact of teething during the first thirty days of a child's life have been described. A number of works are devoted to the theory of heredity of teething, which does not contradict the research of WiesG. E. Elizarova V.M. et al. notes late teething in children of young parents. The same tendency persists in children born after the first child [7]. As a result of the study, Dzgoeva MG identified that among children born to women with gestosis, hypertension, there was a delay in eruption in 57% of cases [5]. Other authors have established a correlation between a high degree of prematurity and late teething [7]. There are observations where the authors record a delay in teething in low birth weight children [13].

The physiological formation of tissues and organs of the oral cavity is influenced by the way a child is fed [5]. Zataar N. associate found that teeth erupted later in children who were on artificial feeding, in contrast to children who received breast milk [6]. The data of GA Chetvertnova [10] contradict this. The author found that the teeth erupt earlier in infants who received mixed nutrition, which is a favorable background for the development of diseases of the hard tissues of the teeth.

The postnatal period of a child's life will affect the formation of the dentoalveolar system [11]. Oleinik EA points out the interdependence of a child's somatic diseases and delayed teething. The fact of delay in teething was established by authors studying hypothyroidism. The consequences of the experienced rickets will affect the timing of the eruption of deciduous teeth, there are studies where the authors mention the violation of the timing and sequence of eruption [16]. Agapov NI explains this phenomenon by the uneven process of osteogenesis in the bone. Elizarova V.M. et al. the main reason for late teething was the postnatal rickets, which does not contradict the studies of other researchers: in children with clinical manifestations of vitamin D deficiency, the well-known principles of teething of deciduous teeth are violated [3].

The well-known developments on the classification of the generally accepted terms of teething are not obvious, which dictates the need for a detailed study, taking into account regional and ethnic specificities. Physiological teething is an

indicator of the harmonious development, somatic health of the child's body [3].

Leading experts in the field of dentistry, in accordance with the classification of Tour AF, distinguish the physiological periods of a child's development, during which a certain structure of the oral cavity organs is preserved. The first period, highlighted by the author - intrauterine - 280 days, is fundamental, determining resistance, physiological formation and subsequent development of the body.

The state of health, lifestyle and the level of hygienic knowledge of a pregnant woman affect the formation of caries resistance of the tissues of the teeth of the unborn child [2,9]. During pregnancy, the level of dental health deteriorates [7], and complications during pregnancy lead to severe symptoms of oral diseases. Some scientific works demonstrate the dependence of pronounced microbial colonization of the oral cavity by cariogenic streptococci and external manifestations of active caries in pregnant women, which will undoubtedly affect the formation of tooth rudiments in young children due to the possible massive transmission of pathogenic flora. The quantity dental well-being of pregnant women, according to a number of authors, establishes hormonal transformation [5], against their background, the characteristics of the oral fluid change, the adhesion and growth of dental plaque is potentiated [3], the total mass of pathogenic flora increases. On the prevalence of inflammatory manifestations from the periodontal tissues in expectant mothers, there are antagonistic data: from an insignificant prevalence to 100%, they are associated with the lack of sanitation, complicated by the course of pregnancy, and unsatisfactory oral hygiene [9]. According to OV Kopchak, half of the women examined at the beginning of pregnancy showed minimal signs of gum inflammation. According to OV Kopchak [4], half of the women examined at the beginning of pregnancy showed minimal signs of gum inflammation.

Unbalanced nutrition, transformation of the state of organs and systems of the expectant mother, favor the emergence of extragenital pathology, which leads to the decompensation of chronic diseases [9,15] and is a risk factor for the initiation of pathology of any complexity in the oral cavity in young children. age [3], which is due to a violation of the formation of a full-fledged structure of hard tissues of teeth [9]. In mothers with complicated pregnancy, according to Rocha J. M., children with low birth weight are born [19], the vast majority have an active form of decay teeth caries [1].

Elementary knowledge of pregnant women in the field of maintaining a healthy oral cavity, both for women themselves and for the unborn child, makes it possible to do without negative experience and difficulties in eliminating the consequences of low education of adults [6]. As a result of studies [8], the fact of insufficient awareness of women is associated with socio-economic factors, low quality of education, and a weak interest in dental health. Antenatal prophylaxis is impossible without improving the quality and depth of knowledge of pregnant women, consistent diagnosis and correct treatment with a professional approach, aimed at

long-term results [6].

The amount of hygienic understanding of parents and the degree of their adherence to preventive measures in children is commensurate with the risk of carious disease, which is demonstrated by numerous examples [12,19]. It has been statistically proven that timely visits to the dentist, systematic and timely care of the child's oral cavity under the supervision of parents, and restriction of the use of refined carbohydrates reduce the risk of dental hard tissue diseases in children [5].

## 2. Conclusions

Carrying out a set of measures that meet the above tasks, lead to an increase in the effectiveness of pathogenetic therapy. All stages of the preparation of protocols are carried out on the basis of a systematic approach to the analysis of modern tactics of managing patients with RCD, taking into account age characteristics and the activity of the carious process. From this it follows that the implementation of clinical methods of the pathogenetic level of management of patients with deciduous dental caries, the preparation of individual protocols for pathogenetic treatment, acquires the importance of quality criteria for this therapy.

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