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DENTAL STATUS AND PREVENTION OF DENTAL DISEASES IN PREGNANT WOMEN

Abstract. Pregnant women have a high level of dental diseases and a high risk of infection with Str. mutans. Preventive measures reduce the risk of developing caries and periodontal diseases in pregnant women. The introduction of a xylitol-containing hygiene product into the preventive dental program leads to a significant decrease in Str. mutans in the saliva of pregnant women, which can help reduce the risk of developing caries at an early age in their children.
Keywords: pregnancy, xylitol, prevention, early childhood caries.

INTRODUCTION

Pregnancy should be considered as a risk factor for the development of major dental diseases - caries and periodontal diseases. The most common dental complication of pregnancy is gingivitis [1]. This is facilitated by the high concentration of estrogens, progesterone and prostaglandins that accompanies pregnancy. These biologically active substances disrupt the blood supply to the gums, damage the cellular link of the immune system, prevent collagen synthesis and change the properties of the subgingival microflora. It should be taken into account that the absence of treatment for gingivitis in pregnant women increases the likelihood of its rapid progression [2]. In recent years, numerous data have appeared on the relationship between periodontal infections in pregnant women and premature birth [3].

MATERIALS AND METHODS

Periodontal diseases caused and maintained by gram-negative anaerobic bacteria disrupt the normal course of labor due to inflammatory cytokine formation by the placental membranes, leading to premature labor and low birth weight of the baby at preterm birth [4]. Accordingly, during pregnancy, the need for treatment and prevention of periodontal diseases increases. According to some studies, there is no evidence that pregnancy is a risk factor for the development of caries, however, in the clinic we often observe the occurrence of a cariogenic situation in pregnant women and, accordingly, a high risk of developing caries [2]. An increased risk of caries during pregnancy may be associated with a temporary deterioration in oral hygiene, changes in food preferences, and an increase in the content of carbohydrates in food. In addition, due to hormonal changes in pregnant women, the functional activity of the salivary glands is often reduced, the amount of salivation is reduced, and, accordingly, the process of remineralization in the enamel is reduced [3].

RESULTS AND DISCUSSION

It has been proven that the most common cause of so-called “oral infection” of a newborn child is from the mother or other people caring for him. The earlier the child is infected, the higher the risk and intensity of the carious process [2]. As a rule, Str. mutans enters the child’s oral cavity when the mother (or people caring for the child) licks the pacifier, samples food on a spoon, etc. At the same time, according to modern views on the etiopathogenesis of early childhood caries, the leading role in

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its occurrence is given to the factor of transmission of aggressive cariogenic microflora from mother to child in the first years after birth.

Prevention programs for major dental diseases in pregnant women should include dental education, activities aimed at all links in the etiopathogenesis of caries and inflammatory periodontal diseases, primarily antimicrobial, remineralizing therapy, and activities aimed at increasing the functional activity of the salivary glands.

All of the above substantiates the high importance of preventive measures in pregnant women.

Triclosan and chlorhexidine have been widely used as antimicrobial agents in recent years, but their use has a number of negative factors. One of the promising areas in caries prevention is the use of sugar substitutes, in particular xylitol, which has pronounced anticaries properties. It has now been proven that its anticaries effectiveness is the highest among the entire group of sugar alcohols [3].

The mechanism of action of xylitol is multifactorial:

• The absence of enzymes in microorganisms that break down xylitol leads to its excessive accumulation in the bacterial cell, which causes its lysis - “lethal synthesis”.

• Xylitol causes a significant increase in the activity of salivary lactoperoxidases, enzymes that promote the lysis of cariogenic microorganisms.

• Xylitol reduces the adhesion of cariogenic microorganisms to hard dental tissues, prevents the formation of dental plaque, which contributes to better hygienic condition of the oral cavity.

• Xylitol accelerates salivation, increases the buffering and remineralizing functions of saliva.

The analysis of the dental status showed a high prevalence and very high intensity of caries in pregnant women.

The subjects had an unsatisfactory level of oral hygiene and a high prevalence of periodontal diseases.

Particular attention should be paid to the high initial values of the Str. mutans microbial contamination index in pregnant women, which contributes to a high risk of caries and, accordingly, a high risk of early childhood caries in their future children.

Upon expiration of the period of implementation of these prevention programs (3 months), a marked improvement in all the parameters studied was noted in both groups. Thus, the hygienic condition of the oral cavity significantly improved: in the first group - by 41.48%; in the second group - by 43.6%.

The value of the OHI-S hygienic index was 1.03±0.07 and 1.06±0.05, respectively, which indicates a satisfactory hygienic state of the oral cavity.

The prevalence of periodontal diseases according to the CPITN index in the first group did not change after 3 months, but in the second group it decreased to 87.5%, the reduction of this indicator was 12.5%.

At the end of the program, more pronounced differences in the study groups were obtained when studying the intensity of periodontal diseases according to the CPITN index. Thus, in the first group, the reduction of this parameter was 2.28% (CPI = 1.29± 0.2), and in the group using xylitol-containing chewing gum - 12.69% (CPI = 1.17±0.2).

Of particular note is the identified reduction in the risk of caries in pregnant women after the implementation of the program according to microbiological research data. However, in the group using xylitol-containing chewing gum, the reduction in this indicator was significantly higher - by 43% (1.3±0.12 points) with a high level of reliability ($p \leq 0.05$). In the first preventive group, the reduction in this indicator was slightly lower - 19% (1.9±0.13 points).

CONCLUSION

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1. A study of the dental status of pregnant women showed a high incidence of caries and a high degree of periodontal disease. Pregnant women were also found to have a high risk of infection with Str. mutans, which indicates a significant risk of transmitting cariogenic flora to their children.

2. Preventive measures during pregnancy reduce the risk of developing caries, periodontal disease, and improve oral hygiene.

3. The introduction of xylitol-containing chewing gum into the preventive dental program leads to a significant decrease in the content of Str. mutans in the saliva of pregnant women, which can help reduce the risk of developing caries at an early age in their children.

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