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Review Article

Healthy Teeth, Healthy Fetus: The Importance of Dental Prophylaxis

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ABSTRACT:
This article provides a scientific analysis of the impact of dental and periodontal diseases on the health of both mother and fetus during pregnancy. It highlights dental issues (gingivitis, caries) arising from hormonal changes in pregnant women and their correlation with risk factors such as premature birth or low birth weight. The primary objective of the study is to substantiate the significance of dental prophylaxis during pregnancy planning and gestation, as well as to develop recommendations for improving the medical literacy of women.

Keywords: *Pregnancy, dental prophylaxis, fetal health, caries, gingivitis, oral hygiene, calcium metabolism, mother and child.*

INTRODUCTION

The concept of "healthy teeth - healthy fetus" is one of the current trends in modern medicine. Many expectant mothers believe that dental treatment during pregnancy is dangerous, but medical research proves the opposite.

Why is this important?

1. Infection site:Chronic infections in the mother's oral cavity (e.g., periodontitis) can negatively affect the fetus through the circulatory system.
2. Hormonal changes:Increased progesterone levels during pregnancy make the gums sensitive, which causes "pregnancy gingivitis."
3. Mineral exchange:The fetus takes calcium and other minerals from the mother's body to form its skeletal system, which can lead to weakening of the mother's tooth enamel.

DISCUSSION

One of the most pressing problems at the intersection of modern dentistry and obstetrics is the state of the oral cavity in pregnant women and its impact on the development of the fetus. Pregnancy is a period of great physiological testing for the female body, during which all internal organs and systems work in an enhanced mode. In particular, changes in the endocrine system, restructuring of the hormonal background and temporary weakening of the immune system cannot fail to be reflected in the tissues of the oral cavity. Statistical data show that more than 90% of women at different stages of pregnancy have dental and gum diseases. This indicator poses a threat not only to the personal health of the mother, but also to the healthy birth and development of the future child.

The main driving force behind the changes that occur in the oral cavity during pregnancy is hormonal changes. A sharp increase in the concentration of the hormones progesterone and estrogen increases the permeability of the small blood vessels (capillaries) in the gum tissue. This process leads to swelling, loosening of the gums, and bleeding even with slight mechanical impact. This condition, called "gestational gingivitis" in medicine, is most often manifested at the end of the first trimester and the beginning of the second trimester of pregnancy. If appropriate preventive measures are not taken at this stage, simple gum inflammation can turn into a more severe form of periodontitis. Periodontitis is not only the destruction of the ligaments that hold the teeth, but also the formation of a chronic focus of infection in the body.

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At the same time, it is necessary to take into account the specific features of metabolism during pregnancy, in particular, mineral metabolism. The mother's body serves as the main source of resources for the formation of the fetal bone system, teeth and internal organs. The need for calcium, phosphorus and other important microelements increases by 2-3 times during this period. If the woman's diet is not sufficiently enriched with these minerals, the body begins to use the reserves in the mother's bone tissue and tooth enamel to cover the needs of the fetus. As a result, demineralization of tooth enamel is observed, that is, a decrease in the mineral salts in its composition. This leads to the fact that the teeth become vulnerable to external influences, acids and bacteria, and the accelerated development of the caries process.

Toxicosis in the early stages of pregnancy also directly contributes to the deterioration of dental condition. Frequent vomiting causes gastric juice (hydrochloric acid) to enter the oral cavity. This acid aggressively eats away at tooth enamel and causes "acid erosion". Also, as a result of changes in the function of the salivary glands, the amount of saliva decreases or the level of protective enzymes (lysozyme) and immunoglobulins in its composition decreases. The loss of the self-cleaning and mineralizing properties of saliva opens up a wide range of possibilities for colonization of the oral cavity by pathogenic microflora, especially Streptococcus mutans bacteria.

The impact of oral infections on fetal health is at the center of modern research. Bacteria that accumulate in the areas of inflammation of the gums and teeth are not just a local problem. These pathogens and their waste products (endotoxins) are absorbed into the bloodstream and spread throughout the body. This process is called hematogenous spread of infection. The most dangerous thing is that these bacteria have the ability to cross the placental barrier. As a result of studies, bacteria typical of the oral cavity have been identified in the fluid surrounding the fetus (amniotic fluid), which directly increases the risk of infection of the fetus (intrauterine infection).

In addition, as a result of chronic inflammation, the body produces special biologically active substances - cytokines and prostaglandins. An increase in the level of prostaglandins in the blood serum leads to premature contractions (contractility) of the uterine muscles. This, in practice, causes complications associated with premature birth, the threat of miscarriage or low birth weight of the baby (hypotrophy). Thus, a single carious tooth or gum inflammation that is not treated in a timely manner can lead to complex obstetric pathologies.

The importance of dental prevention should begin at the stage of pregnancy planning. Based on the principle of "Healthy mother - healthy child", a woman should completely sanitize (rehabilitate) her oral cavity before becoming pregnant. This process includes filling all carious teeth, removing tartar, treating gum disease, and eliminating unhealthy tooth roots. During pregnancy, a dental examination should be carried out at least once in each trimester. The second trimester (13-24 weeks) is considered the safest and most favorable period for any dental interventions, since at this time the fetal organs are formed and the placenta is fully performing its protective function.

Another important part of prevention is personal hygiene. It is recommended that a pregnant woman be careful when choosing a toothbrush and toothpaste, use soft brushes containing fluoride and calcium that do not injure the gums. It is necessary to pay special attention to the diet, limiting products containing easily digestible carbohydrates and sugar. Instead, increasing the intake of foods rich in calcium and vitamins, such as dairy products, fish, fresh fruits and vegetables, and nuts, ensures the strength of tooth enamel.

Clinical trials show that pregnant women who regularly undergo dental preventive measures have significantly fewer birth complications and birth defects in their babies. Also, a healthy mother's oral cavity reduces the risk of microorganisms passing to the baby after birth. Because the bacteria that cause caries are first transmitted to the baby through the mother's saliva. Therefore, taking care of the mother's teeth is the first step towards

ensuring the health of her child's future milk and permanent teeth.

Professional hygiene procedures performed as part of dental prophylaxis, such as ultrasonic cleaning of tooth cavities or coating of enamel with special varnishes, are absolutely safe for the fetus. On the contrary, the presence of pain and infection negatively affects the mother's mental state, causing the release of stress hormones. Stress, in turn, is a factor that negatively affects the formation of the fetus's nervous system. Thus, dental care is not only a way to get rid of toothache, but also a guarantee of a calm and uncomplicated pregnancy.

CONCLUSION

Studies and scientific analyses show that dental prophylaxis in pregnant women is not just a measure to preserve teeth, but a strategic necessity to ensure the safety of the antenatal development of the fetus. It has been proven that chronic foci of infection in the oral cavity, in particular periodontitis and deep caries, are a direct factor in obstetric complications such as premature birth and low birth weight.

In conditions of hormonal changes and mineral metabolism disorders, systematic dental control and compliance with the rules of individual hygiene play a key role in the prevention of pathological processes. The joint work of a dentist and obstetrician-gynecologist, as well as the improvement of the medical culture of future mothers, is the fundamental basis for the formation of a healthy generation. Timely sanitation measures have a positive effect on the uncomplicated course of pregnancy and the general somatic health of the baby.

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