**International Journal of Scientific Trends- (IJST)**
**ISSN:** 2980-4299
**Volume 3, Issue 5, May - 2024**
**Website:** https://scientifictrends.org/index.php/ijst
**Open Access, Peer Reviewed, Scientific Journal**

# Probability of Caries in Preschool Children when Detecting Str. Mutant

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**Abstract**
**This paper presents the first results of the study on the diagnosis of early caries in Voronezh. The study included 30 preschool children who were examined in the morning and evening for the presence of Str. Caries in saliva. The use of modern reagents made it possible to quickly and reliably determine the quantitative content of carious streptococcus spp. This method can be used to identify risk factors for the development of caries early and for the prevention of caries in young children.**

**Keywords: Tooth decay, Str. Mutans, childhood, prevention.**

## Introduction

The experience accumulated over the past decades shows that streptococcal microflora, especially Streptoccocus mutans, play an important role in the development of caries, including in infants. However, given the complex and variable composition of the plaque, it should be noted that other microorganisms can cause caries. 1. One of the most important biological properties of Streptococcus mutans is the ability to adhere to the smooth surface of the tooth and form lactic acid. By adhering to the teeth, these microorganisms form plaques, and this action is mediated by the synthesis of glucose polymers from sucrose contained in food, and the formation of glucans leads to intercellular aggregation of Str. Mutants and other bacteria present in the plaque. The sticky glucan matrix of the plaque prevents the spread of large amounts of acid formed by microorganisms, prolongs its stay on the surface of the tooth, leads to demineralization of the enamel and causes caries [1]. It has been proven that children are most often infected with caries-generating microflora, mainly from mothers and other caregivers. Reducing the level of Streptococcus mutans in caregivers may reduce the risk of developing caries in infants. Therefore, parents are advised to observe oral hygiene, carefully take care of the teeth and use local therapeutic and preventive drugs that suppress the activity of the microflora that causes caries when its high level is detected in the dental biofilm. The age of infection with streptococcus mutans is very important. Previously, it was believed that the colonization of caries-generating microflora in the oral cavity of a toothless child is impossible. However, recent clinical studies have shown that streptococcal mutans can colonize the grooves on the dorsal surface of the tongue even before teething. Genotype analysis of Streptococcus mutans isolates from the oral cavity of infants, children (12-30 months) showed that many children have the same Streptococcus mutans

genotype. This fact testifies to the presence of horizontal propagation as a method of propagation of carious microorganisms [2]: The prevalence of caries of false teeth in children aged 3 years is 14-78%, with an average caries intensity of 3.7.The prevalence of false tooth caries in children aged 6 years is 73%, with a caries intensity of 4.76.The prevalence of caries in permanent teeth is 22%, and the intensity of caries is 0.30. At the age of 12 in schoolchildren, the prevalence of tooth decay of permanent teeth in different regions of Russia reaches 61-96%, the intensity is 0.9〜4.6 [3]. Taking into account these data, improving the comprehensive prevention of caries in children will significantly improve the condition of the teeth and prevent dysfunction of the dental system. Microbiological parameters are the amount of streptococcus mutans and lactobacillus in saliva, which are recognized as the most important microorganisms for the development of caries. Microbial contamination of saliva is positively correlated with the number of bacteria in the plaque [4]. The balance of autogenic transient flora and obligate flora on the surface of the tooth (epigastric plaque) begins demineralization of the tooth enamel.An increase in the number of microorganisms, such as mutans and Lactobacillus, is associated with a decrease in pH (5.0-4.5). Plaque is where most of the microbes in the oral cavity live, and 70% of plaque is made up of microbes. Counting the number of microorganisms in saliva is useful to determine the risk of developing caries in patients and to monitor for preventive purposes. There are many studies on the etiology, clinical picture, diagnosis, treatment and prevention of childhood caries, but the high prevalence and intensity of the disease in many countries of the world make it one of the most important issues in the practice of pediatric dentists [1][5]. Research materials and methods The study included 3 children aged 6-30 years. The average caries intensity of the study group was 3.9 (kpu). Given that the patient had a temporary blockage, the Fedorova-Volodkina index was used to determine the level of oral hygiene. The study was conducted in the morning after breakfast and in the evening before dinner. The presence of Streptococcus Mutans in saliva was determined using the SIVALO-CHECKMUTANSKIT. At high concentrations of Streptococcus Mutans in the saliva, the bacteria reacted with colloidal monoclonal antibodies of Streptococcus mutans. Mutans labeled in gold. In other words, colloidal gold particles are deposited on the surface of Streptococcus mutans. As a result, the bacteria can be found in S. subtilis.It reacts with other antibodies to mutans, and a red line appears in the t window. Colloid s labeled with gold.Monoclonal antibodies that did not react with mutans bacteria reacted with immunoglobulins in the control window C, forming a control red line. The patient is given chewing wax and asked to chew the wax for 1 minute to stimulate salivation. After stimulating salivation, saliva is collected in the provided container. Saliva samples are mixed with reagents. Reagent No.1 is a NaOH solution and reagent No.2 is an organic acid solution. First, the saliva sample under study was added to reagent No.Add 1 to 1 drop, place your finger on the neck of the container and stir for 10 seconds. Then 4 drops of reagent No.Add 2 and stir for a few seconds. The color of the saliva sample changed to light green (ErH changed from alkaline to neutral). After adding the sample, a wide red stripe will appear in the control window (C) of the test device and inform the beginning of the test; the result will be determined after 15 minutes. If a thin red line appears in the T window, the test results are positive, indicating a high concentration of streptococcus mutans in saliva (>5x105 colony-forming units/ml of saliva) and a high risk of developing caries lesions in patients in the future.If the red line does not appear after 15 minutes, the test result is negative.

The low concentration of streptococcal mutans means that the risk of developing caries at this time is also low.

**Results and Discussion:**

In our case, the concentration of streptococcus mutans in the morning is low. This is because most children have a good satisfactory level of oral hygiene in the morning. So, the average Fedorov-Volodkina index in the morning was 2.3, and a high level of Streptococcus mutans in saliva (> 5×105 colony-forming units / ml of saliva) was detected in 5 (16.6%) patients. With a low level of streptococcal mutans in saliva (5×105 colony-forming units / ml of saliva), the average Fedorov-Volodkin index was 2.7, which was detected in 22 (73.3%) patients. Low level of streptococcal mutans in saliva Low level of streptococcal mutans in saliva (5×105 colony-forming units/ml of saliva) In the average Fedorov-Volodkina index of 2.7, streptococcal mutans in saliva were detected in 22 people, 73.3%. A low level of Streptococcus mutans in saliva was detected in 8 people (26.6%), with an average Fedorov-Volodkina index of 1.9. According to the study, children did not brush their teeth after lunch and did not engage in hygiene activities, which led to a lower level of hygiene and a higher level of mutans streptococci in their saliva.

**Conclusion:**

Thus, after passing the diagnosis of the risk of developing caries, children become more aware of oral hygiene and it becomes clear how they can reduce the likelihood of new caries, either independently or with the help of parents. The main advantages of this diagnostic system are:- Patient clarity.- Can be carried out during a dental consultation, without the intervention of a specialist or a long examination; - Reliability - isolation of certain local factors/

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