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# ORAL AND DENTAL CONDITION OF CHILDREN WITH HEART DEFECTS

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**Relevance of the study.** One of the most common complications of cardiovascular diseases is the development of heart failure syndrome (HFS). In developed countries, heart failure is one of the main causes of disability and death among the working-age population (WHO, 2005). The most common causes of heart failure are: ischemic heart disease (50-70%), arterial hypertension (12-17%), alcohol abuse (7-9%), diabetes mellitus (10%), cardiomyopathy (3-4%). The results of numerous studies confirm the direct involvement of systemic and local inflammation in the initiation and development of atherosclerosis and its complications. In this regard, infectious diseases of the oral cavity are considered a risk factor for the development of cardiovascular diseases. No characteristic changes were detected in the oral cavity of patients with cardiovascular pathology, but a statistically significant correlation was found with the development of atherosclerosis, coronary artery disease, hypertension, and periodontal disease . When optimizing existing standards for the treatment of oral diseases, it is necessary to take into account the connection of heart failure syndrome with damage to other organs and systems, including dental health, which determines the relevance of this study.

**The purpose of the study** is to improve the study of the oral cavity and dental condition of children with heart defects.

**Research object:** children with heart defects and dental diseases.

**Results and analysis.** Mixed saliva or oral fluid in children with heart defects is a natural remineralizing mixture of the oral cavity and leads to the constant maintenance of the physiological balance of demineralization and remineralization processes in the surface layer of tooth enamel in sick children. Mixed saliva is very rich in macro- and microelements, especially Ca and P, which are 100 times more abundant in oral fluid than in tooth enamel. This factor contributes to the formation of a level of caries resistance in tooth enamel. Also, the active development of dental caries in children is significantly influenced by the physiological properties of saliva, which characterize its secretion rate and viscosity.

The indicators clearly indicate a decrease in the secretory function of saliva compared with healthy children in the control group. In group 1, the value of SST in sick children with a congenital form was slightly below the normal limit (0.33±0.01 ml/min), in the second group it was even lower than the lower limit of the norm and was 0.32±0.01 ml/min. In the increased form, the decrease in SST in both age groups was quite significant and significantly below the norm ($P<0.01$) and was, respectively: 0.29±0.03 ml/min; 0.28±0.01 ml/min. The next indicator that studies the biophysical state in the oral cavity is the viscosity of the oral fluid. In sick children of all age groups, the viscosity of oral fluid was increased compared to the control group. The highest viscosity of oral fluid was observed in children with an increased form of the disease in the second age group and was 4.3±0.02. A direct correlation was found between the SST indicators and the viscosity of oral fluid.

Analysis of the results shows that a decrease in the SST and an increase in its viscosity lead to a significant impairment of the cleansing function of saliva. It disrupts the process of self-

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cleaning in the oral cavity, leads to an increase in the rate of formation and accumulation of dental plaque, and the proliferation of pathogenic microflora in the oral cavity. The study of the pH of the oral fluid showed that if the norm in healthy children is 6.9, then in sick children this indicator is quite low. Thus, in the first group with congenital form, the pH of the oral fluid is 6.5; then in the second group it is 6.45; this is significantly lower than the norm ($P<0.05$). In both groups, the pH of saliva in its increased form is 6.40, which is a critical value for enamel remineralization; below this value, demineralization of the enamel surface layer and the development of multiple caries in children begin.

The combination of increased viscosity and decreased SST with a decrease in pH to the acidic side probably occurs under the influence of local changes in the oral cavity of children with general heart disease, which are caused by the use of large doses of corticosteroids for the treatment of the underlying disease and the extremely low level of oral hygiene. Local and general pathogenetic factors are interrelated and mutually aggravating factors that aggravate the course of both the underlying disease and local underlying dental diseases.

The pathological changes detected in the oral fluid of children with heart defects, such as a decrease in the CST associated with the viscosity of saliva against the background of a low level of hygiene and a shift of pH towards acidosis, are an extremely negative correlation leading to the development of the main dental disease and weakening of the self-cleaning processes of the oral cavity. The interrelation of negative factors, in turn, leads to a high risk of developing a high cariogenic state in the oral cavity of children with common heart defects. It should also be noted that a certain correlation was found between the studied values of mixed saliva, such as viscosity, CST and pH. Thus, an inverse relationship was established between CST and viscosity of mixed saliva, that is, when CST decreases, viscosity increases and vice versa. A direct correlation was established between the CST and pH of saliva, that is, when the CST decreased, a parallel decrease in pH was observed in mixed saliva.

Analyzing the data obtained, we concluded that in the oral cavity of children with heart defects, reliable local changes are observed, which depend on the severity of the underlying disease and occur with changes in the quantitative and qualitative indicators of the secretory function of the salivary glands.

**Conclusion.** Thus, it should be noted that in all age groups studied in children with heart defects, significant changes in the quantitative indicators of mixed salivary secretory function were detected, hyposalivation develops, which leads to dryness of the oral cavity, the risk of active caries, inflammatory damage to periodontal tissues, and the development of periodontal diseases. The development of hyposalivation sharply reduces the processes of rinsing the teeth with mixed saliva, which leads to impaired self-cleaning of the oral cavity and the development of major dental diseases in the organs of the oral cavity of children with heart defects, which is associated with this process.

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