

# CYTOKINE PROFILE AND ROLE OF NUCLEAR TRANSCRIPTION FACTOR KB IN CHILDREN WITH GINGIVITIS/PERIODONTITIS AND SOMATIC DISEASES

Sheshukova O.V., Bauman S.S., Kuz I.O.

*Ukrainian Medical Stomatological Academy, Poltava, Ukraine*

## ABSTRACT

**Introduction.** Early detection of the disease plays an important role in the success of its treatment. If the disease is impossible to cure, early diagnosis will allow to control the course of the disease better.

To diagnose the initial, latent forms of the disease, various markers in saliva are increasingly starting to be used recently as diagnostic tests for gingivitis and periodontitis. Moreover, some saliva indicators are sensitive indicators of serious systemic diseases and body conditions. Even short-term and minor chemical and metabolic disorders in the body that accompany general somatic pathological conditions can change the saliva composition.

**Purpose of the study.** The problem of gingivitis and periodontitis in children is one of the main problems for modern dentistry. Scientific studies have shown that the initial pathological changes in chronic catarrhal gingivitis without timely treatment in children lead to severe forms of periodontitis in adulthood. A low level of oral hygiene is the main factor in the formation of dental plaque and biofilm, consisting of specific microflora. It is the main etiology factor in the occurrence of inflammatory processes in periodontal tissues. In order to accelerate the speed of early diagnosis of diseases, modern scientists are focusing on identifying biomarkers that could indicate that a person has a certain disease even before the onset of clinical symptoms.

**Materials and research methods.** To analyze the scientific literature that describes the cytokine profile, as well as the role of the NF- $\kappa$ B in children with periodontal disease and somatic diseases.

**Research results and discussion.** Periodontal monocytes, macrophages, fibroblasts, endothelial cells react to microorganisms, lipopolysaccharide and other plaque antigens and secrete numerous chemokines and inflammatory cytokines in the systemic circulation. The end products of glycolysis accumulated in monocytes due to hyperglycemia increase oxidative stress in the cells and activate the NF- $\kappa$ B, which affects the macrophage phenotype and leads to an increase in the production of inflammatory cytokines.

**Transcription factors** are factors present in the cytoplasm of many cells. They are transported to the nucleus to regulate the production of many inflammatory mediators after their activation. There is a lot of information about inflammatory mediators of periodontal tissue destruction, less is known today about the role of transcription factors in the pathogenesis of periodontal disease.

**Conclusions.** Cytokines are the initial link in the activation of the immune response, determine the effectiveness and type of immune response by infectious and non-infectious agents, they are directly involved in the development and regulation of local inflammatory and immune responses. The biological activity of cytokines directly affects the degree of periodontal destruction. That is why the study of the cytokine status of children with somatic diseases is very relevant, since cytokines are triggers of the inflammatory process in periodontal tissues and predictors of the progress of pathological changes. After analyzing a number of sources, we found that today the NF- $\kappa$ B and its manifestation in inflammation of periodontal tissues in children has not been practically studied. The vast majority of literature refers to the determination of the cytokine profile in periodontal diseases mainly in adults, and there is very little information regarding children and great attention should be paid to this.

