

## SOME INDICATORS OF ANTIOXIDANT DEFENSE SYSTEM IN CHRONIC KIDNEY DISEASE

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As a result of a number of exogenous and endogenous damaging factors the incidence and diagnosis of chronic kidney disease (CKD) is on the rise all over the world. It is believed that during CKD the intensity of lipid peroxidation processes is in the center of key pathogenic mechanisms against the decreased function of antioxidant defense system. The aim of the study was to study the correlation between dioxide, malondialdehyde and nitric oxide - which is a natural antioxidant in the serum of the kidneys with redox-glutathione, the main product of lipid peroxidation.

**Materials and Methods.** 80 patients with chronic kidney disease were examined. Diagnosis was verified on the basis of clinical, instrumental and laboratory research methods. The control group consisted of 20 people without any clinical and laboratory deviations in health. The concentration of reduced glutathione was determined by the Ellman (1959) method, the level of diene conjugates (the primary product of lipid peroxidation) was determined by the Gavrilov (1983) method, and malonic dialdehyde by the Matskushita (1988) method. The nitric oxide content was determined by the GRIESS reaction based on the analytical difference between the total nitrites and nitrates (Commerical kit Thermo Scientific, Pierce Biotechnology, Rockford, IL, USA). The correlation between the indicators was determined by the Spearman method.

**Results.** According to the results of the correlation analysis in chronic kidney disease, against the background of a decrease in the level of reduced glutathione in the peripheral blood, an increase in the concentration of nitric oxide and lipid peroxidation products relative to the control group is noted. A reliable positive correlation between the level of nitric oxide and the content of diene conjugates and malondialdehyde (respectively,  $r=0.74$ ;  $p<0.05$  and  $r=0.69$ ;  $p<0.05$ ) was revealed.

A negative correlation between an important indicator of antioxidant protection - reduced glutathione and lipid peroxidation products, as well as a positive correlation between endothelial damage index - nitric oxide and lipid peroxidation products revealed in chronic kidney disease indicates the possibility of using all these indicators in assessing the severity of this pathology and predicting long-term results.

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## CYTOKINES AND BONE TISSUE BIOMARKERS IN PATIENTS WITH RHEUMATOID ARTHRITIS

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Rheumatoid arthritis (RA) is characterised by inflammatory synovitis that causes joint cartilage and bone destruction and increases fracture risk through bone erosion and osteoporosis. Bone damage is localised to the periarticular cortical areas of inflamed joints in early RA, but osteoporosis extends to the diaphyses becoming generalised in advanced stages. Osteoporosis is considered as one of the most serious complications of RA, which determine the unfavorable course and prognosis of the disease. From 28 to 77% of patients with RA have osteopenic syndrome and osteoporosis. It is assumed that the development of rheumatoid inflammation and osteoporosis in RA has common

pathogenetic pathways, where the main role is given to the imbalance of pro- and anti-inflammatory cytokines. In this regard, the study of the effect of cytokines on bone formation processes and the state of bone mineral density continues to be the focus of attention of researchers.

**Materials and Methods.** In this research work was conducted a comprehensive assessment of the cytokine status and the state of bone metabolism in patients with rheumatoid arthritis (RA). Totally, of 74 RA patients (59 women, 15 men) aged 27 to 71 years were examined. The levels of cytokines IL-2, IL-6, TNF- $\alpha$  and bone metabolism markers-osteocalcin, osteopontin, free hydroxyproline were determined in the blood of all individuals included in the study group. Patients were divided into two groups based either on the presence or on absence of rheumatoid factor (RF) in the blood serum: seronegative and seropositive RA.

**Results.** The results of the study showed high production of IL-2, IL-6, IL-8, IL-10, TNF- $\alpha$  in RA patients compared to healthy individuals, especially in the seropositive group of patients. Elevated levels of osteocalcin, osteopontin, free hydroxyproline, and activity of ALP have been revealed, which indicates a high "speed" of bone metabolism in RA, which subsequently leads to a decrease in bone mineral density and fractures. Our data indicate the advisability of a comprehensive assessment of biochemical markers of bone metabolism and cytokines for early diagnosis of osteoporosis in RA patients and for monitoring the therapy.

**Key words:** *rheumatoid arthritis, osteoporosis, interleukins, TNF- $\alpha$ , osteocalcin, osteopontin, hydroxyproline.*

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## DETERMINATION OF THE DIAGNOSTIC VALUE OF SOME CYTOKINES IN BREAST CANCER

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Breast cancer is widespread type of tumor among the female population of Europe, America and some Asian countries. According to total number of cases among the entire population, this type of oncological pathology takes second place after lung cancer. The most important way to combat breast cancer is through early and timely diagnostics.

The aim of our work was to determine the diagnostic value of IL-2, IL-6, IL-8, IL-10 and TNF- $\alpha$  in breast cancer patients.

**Methods and materials.** 76 patients at the age of 18-79 who checked up breast cancer at the Oncological Clinic of Azerbaijan Medical University were included into the study. The control group included 16 practically healthy woman of the corresponding age. The diagnosis was confirmed on the basis of anamnestic, clinical, instrumental, laboratory and morfological datas. Among 76 woman examined, 48 were diagnosed as malignant, and 28 as benign. In all patients, the level of cytokines (IL-2, IL-6, IL-8, IL-10, TNF- $\alpha$ ) was determined using analyzer STAT-FAX 303 PLUS (USA) with kits of the company "Vector –Best" (Russia) by the method of enzyme immunoassay.

According to the results of our researches, appreciating the malignancy of breast tumors, the total diagnostic weight of the test for IL-2 was 67,1 $\pm$ 5,4%, for IL-6 - 84,2 $\pm$ 4,2%, IL-8 - 82,9 $\pm$ 4,3%, IL-10 - 82,9 $\pm$ 4,3% and for TNF- $\alpha$  was 65,8 $\pm$ 5,4%.

**Conclusion.** Results showed that the highest diagnostic value had estimation of levels of IL-6, IL-8 and IL-10.

**Key words:** *breast cancer, cytokines, IL-2, IL-6, IL-8, IL-10, TNF- $\alpha$*