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### **CHRONIC KIDNEY DISEASE IN PATIENTS WITH RHEUMATOID ARTHRITIS**

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The pathogenesis of renal involvement in rheumatoid arthritis (RA) is a complex combination of congenital and acquired defects in immunoregulatory mechanisms. Changes of the kidney in patients with RA are diagnosed much less frequently nowadays in clinical laboratory and instrumental studies than are found in section. Scientists have paid considerable attention to the search for new effective methods of diagnosing kidney damage, methods of forecasting of chronic kidney disease (CKD) and its progression.

The aim: to develop methods of early diagnosis of kidney damage in patients with rheumatoid arthritis.

The authors examined 113 patients with RA II-III degree of activity. All patients who were included in the study, carried out a thorough examination using conventional clinical, laboratory, biochemical, and instrumental studies highly informative original modern research methods that are defined using uniform methods approved by the Ministry of Health of Ukraine. The presence of chronic kidney disease carried according to established classification adopted by the 2nd Congress of Nephrology Ukraine. The formula CKD-EPI was used for determination of glomerular filtration rate (GFR). Patients were divided into four groups: I- patients with RA without renal damage (n =20), II-patients with RA with CKD stage I (n = 33), III-patients with RA with the presence of CKD stage II (n=31), IV-patients with RA with the presence of CKD stage III (n=29). Comparison group was 20 healthy individuals. In addition to conventional laboratorial tests the level of TGF- $\beta_1$  in serum and  $\beta_2$ -microglobulin level in serum and urine were determined.

In patients with RA observed reliable increase  $\beta_2$ -microglobulin content according to the stage of CKD. We found reliable increase in the level of  $\beta_2$ -microglobulin in patients with RA with renal impairment compared to those of patients with rheumatoid arthritis without renal disease. Revealed growth  $\beta_2$ -microglobulin content of urine that increased according to the stage of CKD. Most pronounced changes are observed in RA patients with CKD stage III compared with the corresponding data of patients with CKD I and CKD II ( $p < 0,05$ ). In patients with RA was observed increase the content of TGF- $\beta_1$  of blood and with CKD. It should be noted that the content of TGF- $\beta_1$  in patients with rheumatoid arthritis with the presence of CKD III differed significantly from the corresponding values of TGF- $\beta_1$  in patients with CKD I and ( $p < 0.05$ ) and patients who had CKD II ( $p < 0.05$ ). We found an inverse correlation between the magnitude of GFR and  $\beta_2$ -microglobulin of blood ( $r = -0,59$ ),  $\beta_2$ -microglobulin urine ( $r = -0,49$ ), TGF- $\beta_1$  serum ( $r = -0,78$ ).

The determination of TGF- $\beta_1$  of blood and  $\beta_2$ -microglobulin in blood and urine tests are important biomarkers of kidney damage in patients with RA, especially tubulointerstitial. These studies can detect kidney disease in the early stages of its origin, which further allow time to assign adequate therapeutic measures and prevent the complications of the kidneys in patients with RA.

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### **YOGA AT PHYSICAL EDUCATION CLASSES OF HIGHER EDUCATIONAL ESTABLISHMENT**

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During physical education classes, yoga is a particular philosophy of body and combines the unique physical, moral, mental and spiritual loadings that together accumulate all hidden "contaminated" capacities of the body as the result of tiredness and stressful situations. Yoga means the balance of mind; it gives the opportunity to look at life from all sides and in all its manifestations. It is one of the most ancient and at the same time the most effective system of physical exercises, that contributes the muscular system development and includes the use of special exercises and techniques variety (or vary).

To provide benefit body, maximum relaxation and release from stress at physical education yoga classes, the following rules must be followed: it is necessary to do yoga with positive mood; it is necessary to do warm-up before fulfilling asanas; beginners are not allowed to stay in a position for a long time, especially if it is complicated; classes should be conducted with an empty stomach (the last meal must be minimum 3 hours before classes), after doing asanas it is forbidden to drink for 30 minutes; it is necessary to teach the body to focus on separate organs, because the effect of almost all yoga exercises is directed at internal organs: liver, gland of internal secretion, cardiovascular system, lungs, gastrointestinal tract, etc.

Therefore, physical education teachers are direct carriers of ancient spiritual and physical practice while using yoga exercises during classes, which in addition to the positive impact on the physical condition of students, contribute establishment of a dialogue between students and teachers. Also, classes with yoga elements are more productive than ones with traditional program loads and they have the better effect on the physical and psychological state of students. Students can withstand loads, they are not overdone, they execute yoga exercises with pleasure.