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THE IMPORTANCE OF IDENTIFYING BIOMARKERS OF KIDNEY DAMAGE

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Abstract: The concept of chronic kidney disease, which reflects the nature of kidney pathology and the rate of progression, determines the need to search for biomarkers of kidney damage to coordinate the treatment and diagnosis of patients.

The problem of kidney nephrosclerosis in patients with chronic pyelonephritis remains one of the main problems of nephrology and internal medicine in general due to the high prevalence of kidney disease in the population. It is known that nephrosclerosis develops in the majority of patients with kidney diseases, and its pathogenetic mechanisms have been actively studied in recent years.

The article presents the issues of developing effective and non-invasive methods for diagnosing the development of nephrosclerosis in patients with chronic pyelonephritis, as well as the results of research on early diagnosis, effective treatment and prevention of these conditions.

Keywords: nephrosclerosis, tubulointerstitial fibrosis, kidney epithelium, fibrogenesis, profibrogenic cytokines, chronic pyelonephritis, chronic kidney diseases.

Introduction.

Based on the results of a large number of scientific studies conducted today, special attention is paid to the development of appropriate treatment regimens depending on the presence of clinical components of renal nephrosclerosis in chronic pyelonephritis. At the same time, identification of tubulointerstitial fibrosis in the formation of chronic kidney disease in a pathogenetic interrelationship with factors controlling inflammatory processes is one of the urgent tasks of coordinating differential therapy.

Nephrosclerosis [Greek. nephros - kidney, sclerosis - thickening] - hardening and "twisting" of the kidney as a result of covering the connective tissue. It is observed in hypertension, pyelonephritis, kidney tuberculosis, glomerulonephritis, kidney stone disease, etc. In nephrosclerosis, mainly the small arteries (arterioles) of the kidney are damaged, they twist and break, as a result, the kidney epithelium dies [1].

Kidney tissue damage in nephrosclerosis is a very complex process, and the spread of fibrogenesis processes to resorption and extracellular matrix utilization processes leads to the remodeling of connective tissue and the development of nephrosclerosis in patients with this pathology [2].

Relevance.

Currently, a complete examination of the patient should include the use of various markers, each of which may report impaired glomerular functions or interstitial damage to the kidney.

The expansion of scientific understanding of the mechanisms of development of nephrosclerosis in patients against the background of chronic pyelonephritis is associated with the complexity of assessing the contribution of various pathogenetic factors and their interaction.

At the same time, the emergence of new non-invasive informative markers that determine the risk of development and exacerbation of nephrosclerosis creates the necessary conditions for the early diagnosis of kidney dysfunction and the detailed description of algorithms for the development of targeted therapy.

The high prevalence of kidney damage among the population, including the increase in its observation in the young, able-bodied part, the severity of the prognosis is due to insufficient development of treatment problems.

In the study of the pathogenesis of renal nephrosclerosis, it is important to decode the mechanisms of inflammatory processes in the kidney and to develop the most informative diagnostic methods.

Development of methods for early diagnosis and prevention of chronic kidney diseases, improvement of clinical and laboratory markers, which allow to prevent possible complications, remain important.

Thus, it is urgent to develop effective and non-invasive methods for diagnosing the development of nephrosclerosis in patients with chronic pyelonephritis.

Materials and methods.

To solve the tasks, 102 patients and healthy individuals (47 men and 55 women) were selected from the multidisciplinary clinic of the Tashkent Medical Academy, the Republican Research Center of Specialized Urology, and 78 of them were patients with chronic kidney disease. Divided into 2 groups.

Group 1 - 40 (51.3%) patients without nephrosclerosis on the background of chronic pyelonephritis;

Group 2 - 38 (48.7%) patients with symptoms characteristic of true proteinuric forms of nephrosclerosis.

The control group consisted of 24 practically healthy volunteers (12 men, 12 women).

The age of the patients ranged from 22 to 65 years. The average age of the research participants was 43.90±1.7 [3].

The subjects in the control group were not infected with viral respiratory diseases during the last 6 months, there were no signs of diseases affecting the functional state of the kidney, and morphological disorders in the kidney were not detected in the ultrasound examinations.

Complaints of patients, genetic anamnesis, lifestyle of patients (diet, physical activity, bad habits) were studied in detail. Particular attention was paid to distinguishing the different components of the estimation of albumin levels in blood serum and urine.

Research methods:

- general clinical and hematological;
- biochemical;
- immunoenzyme;

- statistical method.

In addition to the general clinical examination adopted for nephrological patients, we used special research methods. For specific studies, first morning urine (middle portion) was collected directly into a sterile container and centrifuged to remove solid particles.

Freshly prepared samples at 20°C were used for the analysis. The following were studied in the urine of patients with chronic kidney disease: profibrogenic cytokines: MCP-1, TGF-β1, IL-1, IL-6, IL-8 and TNF-α by immunoenzymatically method. Inspections were carried out in accordance with the recommendations of the manufacturers of test systems of "Vektor Best" ZAO (Novosibirsk).

Research results and discussion.

In our study, a special card was filled out for each patient. It included personal data, dynamics of complaints during initial and treatment, instrumental and laboratory research data. For the entire period of treatment, the dynamics of clinical signs and objective research data were shown in the table. The patient's general condition, skin condition, general clinical data, pulse, blood pressure, lumbar palpation and Pasternatsky's sign data and the patient's response to examination were recorded daily.

In patients with chronic kidney disease, increased body temperature (100%), pain in the lower back (100%), general weakness (100%), shivering (98.7), headache (88.7), dizziness (88.7%), nausea (9.7%) was observed. Leukocyturia (100%), bacteriuria (53.3%), and erythrocyturia (54.8%) were detected in the majority of patients. As we can see, symptoms of general intoxication of the body (fever, weakness, chills, headache, dizziness, nausea) and local pain symptoms (positive Pasternatsky sign, tension of the abdominal wall muscles, pain in the projection of the kidneys) prevail in patients with chronic kidney diseases [4].

All patients underwent standard clinical and biochemical examinations at the time of primary examination.

It was found that there are significant differences in the quantitative indicators of MCP-1, TGF-β1, TNF-α in patients of groups 1 and 2, that is, these indicators increased by 2.6 times in 2 groups.

It was found that the amount of IL-1, IL-6, and IL-8 in the urine of patients with nephrosclerosis due to chronic pyelonephritis increased by 2.2 times compared to the control group.

Conclusion.

Determination of IL-1, IL-6, IL-8 indicators in daily urine is an informative criterion for diagnosing the development of kidney nephrosclerosis on the basis of chronic pyelonephritis and for coordinating treatment.

Also, when diagnosing the development of renal nephrosclerosis on the basis of chronic pyelonephritis, the amount of MCP-1, TGF-β1, TNF-α in the urine increases the activity of plasminogen activator inhibitor-1 and decreases tissue plasminogen activator-1 and fibronectin, VEGF, THSBN-1, cystatin C, the use of correlation with annexin hyperproduction in the work of doctors of multidisciplinary clinics and specialized nephrology centers is also an early diagnostic criterion.

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