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RENAL COMORBIDITY IN RHEUMATOID ARTHRITIS

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Annotation
The article presents the materials of kidney damage in patients with rheumatoid arthritis (RA). The most common cause of kidney damage among inflammatory joint diseases is rheumatoid arthritis, which increases the rate of occurrence of the kidney pathological process with an increase in the duration of the disease. Risk factors for kidney damage in rheumatoid arthritis are older patients with high activity, a disease duration of more than 5 years, a late clinical stage, and the seropositive nature of RA. The basis of the work was the results of a comprehensive clinical, instrumental and laboratory examination of 60 patients with RA.

Keywords: rheumatoid arthritis, inflammation, kidney damage, microalbuminuria, proteinuria, glomerular filtration rate.

ПОЧЕЧНЫЙ КОМОРБИДНОСТЬ ПРИ РЕВМАТОИДНОМ АРТРИТЕ

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Аннотация
В статье приведены материалы поражения почек у больных ревматоидным артритом (РА). Наиболее частой причиной развития поражения почек среди воспалительных болезней суставов является ревматоидный артрит, при котором повышаются темпы возникновения патологического процесса с увеличением длительности заболевания. Факторами риска поражения почек при ревматоидным артритом являются пациенты старшего возраста с высокой активностью, продолжительностью заболевания более 5 лет, поздней клинической стадией, серопозитивным характером РА. Основу работы составили результаты комплексного клинического, инструментально-лабораторного обследования 60 больных РА.

Ключевыеслова: ревматоидный артрит, воспаление, поражения почек, микроальбуминурия, протеинурия, скорость клубочковой фильтрации.

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РЕВМАТОИДИ АРТРИТ БЕМОРЛАРДА БУЙРАК КОМОРБИДЛИГИ

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Аннотация
Ишда ревматоидли артрит (РА) беморларда буйрак зарарланиш маълумотлари қайд этилган. Бўғимлар яллиғланиш касалликлари орасида энг кўп учрайдиган сабабларидан бири ревматоидли артрит бўлиб ҳисобланади. Бу ҳолат касалликнинг давомийлиги узайиши билан буйракда патологик жараённинг кучайиши ҳам мос ҳолда қайд этилади. Ревматоидли артрит беморларида буйрак зарарланиши хавф омилларига юқори активликда кечувчи катта ёшдаги беморлар, 5 йилдан кўпроқ касаллик давом этиши, кеч клиник босқичнинг аниқланиши ва серопозитив ревматоидли артрит шакллари киради. Ишнинг асосини РА билан касалланган 60 беморнинг комплекс инструментал - лаборатор, клиник текширув материаллари ташкил этади.

Калит сўзлар: ревматоидли артрит, яллиғланиш, буйрак зарарланиши, микроальбуминурия, протеинурия, буйрак коптокча фильтрацияси

Introduction

Rheumatoid arthritis (RA) is characterized by high prevalence in the population, difficulty in early diagnosis, rapid development of disability, and poor life prognosis [1,2,12,14]. A high risk of premature death in these diseases is associated with the development of cardiovascular diseases [2,3,13]. RA is characterized by chronic erosive arthritis and systemic damage to internal organs [4,16]. The prevalence of RA is about 0.7% of the total population. Approximately 0.02% of the population develops RA annually [5]. In recent years, the attention of many researchers has been attracted by the prognostic value of kidney damage in rheumatoid arthritis, including at the subclinical level [6,15]. According to some estimates, kidney damage in RA can occur in more than half of patients [7,8,17]. It is important to note that when considering kidney damage in RA, its proteinuric forms can be represented by both glomerulonephritis, amyloidosis, drug-induced tubulointerstitial nephritis, and subclinical kidney damage, manifested mainly by functional disorders (chronic kidney disease) without a clearly defined nosological affiliation. Clinical diagnosis of kidney damage in RA is significantly difficult due to the scarcity of symptoms. In the absence of an extensive clinical picture of amyloidosis, most patients may have

intermittent or persistent proteinuria [8, 11,18]. According to Boers M., out of 132 autopsy cases in RA patients, 20% of them recorded changes in urine tests, 21% had initial functional disorders, 23% of patients had severe renal failure with a serum creatinine level of more than 200 μmol/l . The development of chronic kidney disease in RA can probably be associated with the active involvement of the kidneys in the pathological vicious circle of endothelial dysfunction in RA. At the same time, there is still insufficient data on the variants of functional renal disorders in RA, approaches to the early detection of renal pathology and the assessment of the risk of its progression in RA have not been fully developed.

The purpose of the study was to study the prevalence of kidney damage in patients with rheumatoid arthritis (RA), to identify the main risk factors for the development of renal dysfunction.

The study was an open, comparative, randomized study. The basis of the work was the results of a comprehensive clinical, instrumental and laboratory examination of 60 patients with RA (40 women and 20 men). The age of patients in the clinical group ranged from 20 to 68 years, averaging 50.2 ± 1.1 years. The inclusion criteria for patients in the study were: age 18 years and older, verified diagnosis of RA in accordance with the criteria of the American College of Rheumatology (ACR-EULAR, 2010), informed consent. The exclusion criteria were clinically significant diseases of the internal organs - moderate and severe forms of chronic circulatory failure, organic kidney pathology not associated with RA, liver failure, diabetes mellitus, chronic kidney disease (CKD) stage 4-5 (GFR ≤ 29 ml / min / 1.73 m2). Patients of the clinical group, depending on the presence or absence of clinical signs of kidney damage, were divided into two groups. Group 1 consisted of 34 (57.0%) patients with no renal dysfunction, and group 2 - 26 (43.0%) patients with renal dysfunction. Within the 2nd group among patients with RA, subgroups were distinguished with different involvement of the kidneys in the pathological process: depending on the value of the glomerular filtration rate (GFR) (GFR ≥ 90 ml/min/1.73 m2; GFR 60-89 ml/min/1 .73 m2 and GFR 30-59 ml / min / 1.73 m2), the presence or absence of microalbuminuria (MAU), proteinuria, the level of albumin and protein excretion in the urine. The study of the functional state of the kidneys included a general urinalysis, urinalysis according to the method of Zimnitsky, Kakovsky-Addis; determination of glomerular filtration rate according to the formulas of Cockcroft-Gault and MDRD (Modification of Diet in Renal Disease Study). An ultrasound examination of the kidneys was also performed, the presence and severity of MAU and proteinuria were assessed. Biochemical analysis of blood was used to determine total

protein, albumin, creatinine, uric acid, albumin/creatinine ratio, total cholesterol, and glucose.

The majority was diagnosed with a late stage of the disease - 36 (60%), early - in 24 (40%) patients. The group was dominated by patients with high RA activity, the average value of DAS 28 was 5.91 (5.20 - 6.58).

The main goal of our work was to study the prevalence of kidney damage in patients with rheumatoid arthritis (RA), to identify the main risk factors for the development of renal dysfunction.

Statistical processing was carried out on a DELL personal computer using the Microsoft Office Excel - 2010 software package, including the use of built-in statistical processing functions. The methods of traditional variational parametric and nonparametric statistics were used with the calculation of the arithmetic mean of the studied indicator (M), the standard error of the mean (m), relative values (frequency, %), the statistical significance of the measurements obtained when comparing the average values was determined by Student's t test (t) with the calculation error probability (p). Significant level $p<0.05$ was taken as statistically significant changes.

Results of the study and their discussion. Among 60 patients of the clinical group, 34 (57%) patients had no kidney damage (Group 1). Accordingly, 26 (43%) patients were included in the 2nd group. Among the patients of the 2nd group among kidney damage with microalbuminuria (MAU) was established in 16 (61%) patients: in 4 patients on the basis of persistent MAU, and in one patient on the basis of persistent urinary syndrome in the form of erythrocyturia. Various clinical and morphological variants of renal pathology (mesangioproliferative glomerulonephritis, tubulo-interstitial nephritis, amyloidosis) have been described in RA [9,10], most of which are accompanied by the development of proteinuria at the onset, which can remain the main diagnostic sign for a long time. Early manifestations of functional renal disorders, especially with moderate proteinuria, do not always attract the attention of clinicians, while the progression of CKD in RA can be rapid, especially in old age and in association with cardiovascular pathology.

A slight decrease in GFR (60-89 ml/min/1.73 sq. m) was observed in 16 (61%) patients with RA with kidney damage. In 10 (39%) patients with nephropathy, there was a moderate decrease in GFR in the range of 30–59 ml/min/1.73 sq. m. Normal or elevated GFR (90 or more ml/min/1.73 sq. m) was determined in 3 patients of the 2nd group. Noteworthy is the small proportion of RA patients with normal or elevated GFR (90 ml/min/1.73 m2 or more) among patients of the 2nd group with kidney damage. In general, in the group, MAU was observed in 17 (28%) patients, and proteinuria was detected in 10 (16%) patients. In the 2nd group of patients, MAU was

noted in 4 patients with a slight decrease in GFR, in 10 patients with a moderate decrease in GFR, and proteinuria - in 1 patient with the 2nd and in 10 patients with kidney damage. In total, in the 2nd group, MAU was detected in 18 (69%) patients, and proteinuria - in 8 (31%) patients.

The average level of creatinine in RA patients was 82.6 ± 1.6 μmol/l, the range of fluctuations was from 61 to 135 μmol/l. Hypercreatinemia (in men above 115 μmol/l, in women - above 97 μmol/l) was observed in 8 cases (13%). In RA patients, blood urea ranged from 2.9 to 13.7 mmol/l, averaging 6.4 ± 0.8 mmol/l. An increase in urea above the norm (8.3 mmol/l) was detected in 8 patients (13%). At the next stage of the study, the main indicators reflecting the functional state of the kidneys were analyzed separately in groups with or without kidney damage.

In patients of the 2nd group, with the addition of kidney damage, there was a decrease in GFR by 48.7% ($p < 0.001$), an increase in the level of daily proteinuria by 863.5 times ($p < 0.001$), and creatinine levels by 9.8% ($p < 0.001$). 0.05).

In a preliminary assessment of the specific gravity of urine, based on the results of the general analysis, it was found that in general for the group, the relative density of urine ranged from 1005 to 1030, the average value was 1018.2 ± 1.2. In the 1st group, the relative density of urine varied from 1005 to 1030, in the 2nd group - from 1005 to 1020. The average value of the specific gravity of urine in patients of the 1st group was 1016.9 ± 0.56; 1018.7 ± 0.59. The average value of the relative density of urine in patients of the 1st and 2nd groups, as well as in the general clinical group, was slightly less than the lower limit of the norm. According to the results of the Zimnitsky test, it was found that in general for the group, as well as in the 1st group, the concentration and water excretion capacity of the kidneys was normal. In patients of the 2nd group, the concentration ability of the kidneys was impaired, since the relative density of urine was below 1018. In patients of the 2nd group, the concentration index was lower compared to the 1st group by 35.7% ($p <0.001$). Thus, the group of patients with signs of kidney damage included older patients with high activity, duration of the disease for more than 5 years, late clinical stage, and seropositive nature of RA. Early detection of kidney damage will ensure timely intervention and reduce the rate of progression of kidney damage, hence reducing the incidence of CKD.

According to modern concepts, the presence of protein in the urine is considered as the most important predictor of the development of functional renal disorders and increased mortality in various pathologies, including RA [10,11, 22]. According to some researchers, microalbuminuria and proteinuria with normal or reduced kidney function can develop in the early stages of the course of RA, at the same time, its prognostic value can be ambiguous due to the variety of nosological variants of kidney

damage [20,21]. According to modern concepts, impaired renal function lasting more than three months (the so-called chronic kidney disease), incl. without a definite nosological diagnosis, is considered as the most important prognostic factor requiring correction of treatment tactics in various pathologies in the general population.

Thus, the definition of microalbuminuria can be a simple and sensitive marker of early kidney damage, including drug-induced. A large amount of data on the most important prognostic significance of determining microalbuminuria (proteinuria) as an additional marker of functional renal disorders have recently been taken into account at the international level, which was reflected in the new classification of chronic kidney disease, in which the division into stages was made not only by assessing the rate of glomerular filtration, but the values of microalbuminuria (proteinuria).

Thus, patients with RA are a group of increased risk of renal pathology, the likelihood of which increases with a prolonged and active course of RA. Clinical symptoms of renal dysfunction in RA patients with high activity and duration of the underlying disease, as well as in the detection of arterial hypertension and dyslipidemia, should be the basis for active dispensary monitoring of patients. This approach will direct the efforts of clinicians to the timely treatment of kidney pathology in patients with RA, which will prolong the life of patients and improve its quality.

Conclusions

Among patients with RA, the prevalence of kidney damage is 43% and is manifested by a decrease in GFR less than 90 ml / min / 1.73 m2 in 31%, MAU in 28%, proteinuria in 16%, hypercreatinemia and an increase in urea. Risk factors for renal complications were established: age, high activity and duration of the disease, seropositive nature of RA. In patients with RA, the development of kidney damage and the severity of its manifestations are determined by the duration and activity of the underlying disease, and age.

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