STUDY OF THE RELATIONSHIP BETWEEN KIDNEY DAMAGE IN RHEUMATOID ARTHRITIS AND THE CLINICAL COURSE OF THE DISEASE.

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Abstract: *This article investigated the detection of renal dysfunction in patients with rheumatoid arthritis in the early stages of the kidney disease. It was found that renal damage in patients with rheumatoid arthritis is related to the clinical stage, duration of the disease, and the age of the patients. Renal damage was more common in patients with seropositive rheumatoid arthritis.Research reveals risk factors for kidney damage in rheumatoid arthritis patients.*

The purpose of the study: To determine the correlation between kidney damage and disease progression in patients with rheumatoid arthritis.

Keywords: *Rheumatoid arthritis, kidney damage, seropositive rheumatoid arthritis, renal dysfunction.*

Introduction. The global healthcare system is paying great attention to the treatment of chronic diseases that are not infectious, but are accompanied by damage to various organs and systems. In particular, a number of scientific studies are being conducted on the prevention of chronic kidney disease in patients with rheumatoid arthritis, and on the solution of kidney dysfunction and related problems. Because rheumatoid arthritis is one of the most common diseases among the population, the increase in the number of patients of different ages and genders in recent years is also causing damage to a number of organs and systems, namely the heart, kidneys, stomach, intestinal system, and other organs.Patients with systemic rheumatoid arthritis are three times more likely to develop kidney damage than those with other pathologies (D.M. Lee et al., 2001). American scientists: M.C. Foster, A.M. Rawlings, Marrette et al. (2017) conducted observations on the prevalence of chronic kidney disease in rheumatoid arthritis and found that the prevalence of kidney damage in rheumatoid arthritis is 13.3%, which is 2 times higher than in the general population. They observed that the increased morbidity and mortality in patients with kidney disease is associated with the presence of cardiovascular diseases in them. They also noted that the occurrence of renal amyloidosis in patients with rheumatoid arthritis may lead to an increased mortality rate compared to the general population.In patients with rheumatoid arthritis, hematuria, proteinuria, or chronic kidney disease on urinalysis have been observed, increasing the risk of death among patients by 3-4 times. In recent years, a number of studies have emerged confirming the increasing incidence of chronic kidney damage in patients with rheumatoid arthritis. For this reason, it is important to focus on the study of the early diagnosis and treatment of renal dysfunction in patients with rheumatoid arthritis, as well as the stabilization of the quality of life and clinical condition of patients. In our study, we also studied the specific features of early detection of kidney damage in rheumatoid arthritis.

Material and research methods. The study covered 110 patients diagnosed with Rheumatoid arthritis and 20 healthy individuals in the control group. The study was carried out in patients who were treated as an inpatient in the Department of Rheumatology at the Fergana regional central Medical Center and in patients who were treated as an outpatient at the Fergana City Central Polyclinic during 2022-2023. The diagnosis of rheumatoid arthritis for patients under study was made based on classification criteria adopted by the American Society of rheumatologists and the European anti-rheumatism (ACR/EULAR2010). This study used the following methods: interrogation, general clinical-laboratory analysis, DAS-28, VASH and HAQ index to determine the activity of the disease, R-graph method from instrumental examinations, and statistical methods.

In the course of the study, patients were classified into 3 groups: 57 patients RA +joint damage (RA(+KD)) in Group I; 53 patients RA withoutjoint damage-(RA (- WKD)) in Group II; and 20 healthy individuals were selected in control group III.

Results and analyzes: from the tests carried out above, the correlation between kidney damage in patients with RA and the clinical course of RA disease was studied. Studies in patients with RA showed an increased incidence of kidney damage when signs of disease activity were high. In both groups of patients studied, the activity indicators of RA disease were determined, and the differentiation between them was compared. The indicators between patients in both groups were given in the table below (table 1)

Table 1.

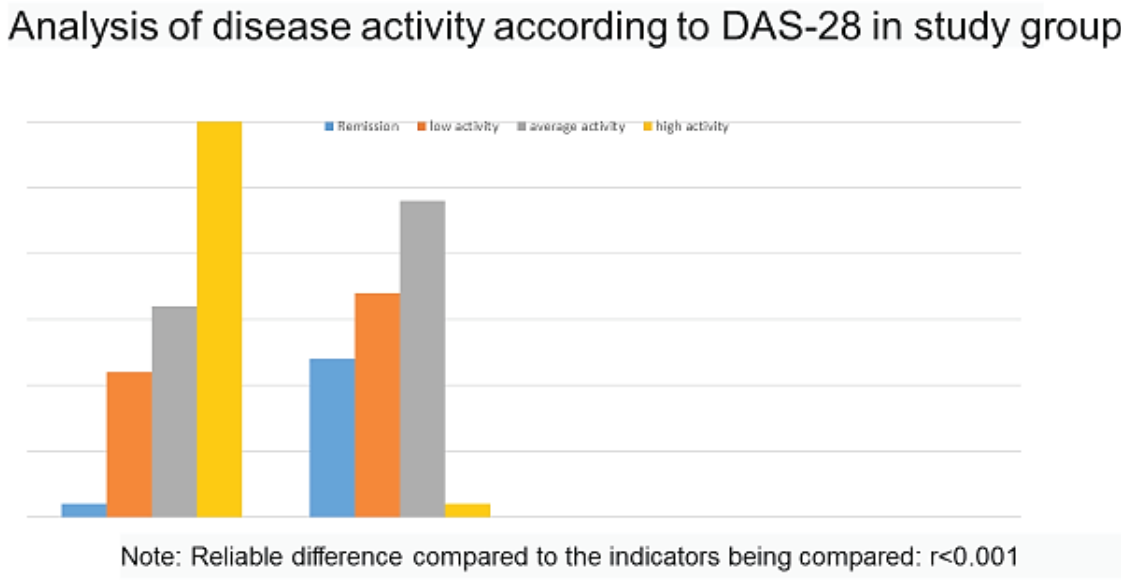
Activity shows of RA disease in research groups

	Rheumatoid arthritis with kidney damage, n=57	Rheumatoid arthritis without kidney damage	P
DAS-28	4,8±0,12	3,3±0,10	<0,001
ESRmm/hour	37,8±1,5	21,3±1,3	<0,001
HAQ	1,8±0,06	1,0±0,08	<0,001
CRP	28,5±2,0	13,0±1,3	<0,001
VASH	6,9±0,25	3,4±0,26	<0,001
NSJ	2,9±0,24	1,3±0,14	<0,001
NPJ	4,4±0,30	1,8±0,19	<0,001

When the disease activity rate was analyzed through DAS-28 among Group I patients, no disease remission was observed among them, low activity rate was observed in 11 -19.3% patients, average activity rate was found in 16 -28% patients, and high activity in 30 – 52.7% patients. In Group II patients, however, when the disease activity rate was analyzed through DAS-28, among them, disease remission was observed in 12 – 22.6% patients, low activity rate was observed in 17 – 32.07% patients, average activity rate was observed in 24 – 45.33% patients, while high activity was not detected in Group II patients. The disease activity in Group I patients was 4.8±0.12 (- $\rho<0.001$) in DAS-28, the disease activity indicator in Group II patients was determined to be equal to DAS-28 3.3±0.10 (-$\rho<0.001$), and when they were compared the difference between them was found to be functional. The higher the disease activity in patients, the more kidney damage was found to be observed (diagram-1).

Diagram 1.

Analysis of disease activity according to DAS-28 in patients of both groups



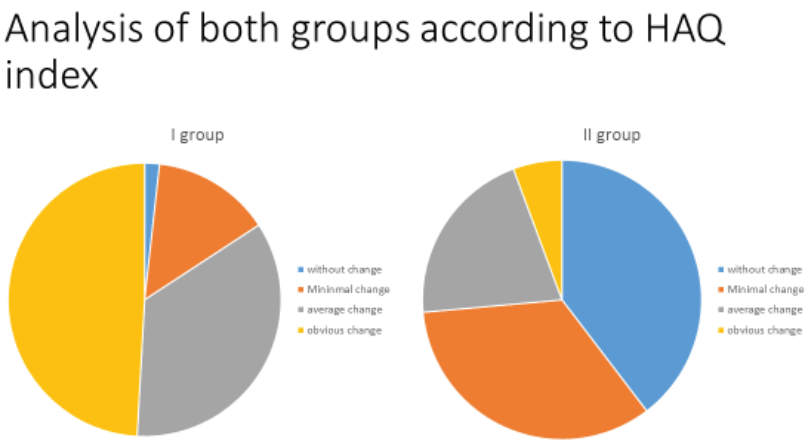
Patients were found to be 37.8±1.5(-ρ<0.001) in Erythrocyte Sedimentation Rate(ESR) Group I patients, and 21.3±1.3(-ρ<0.001) in Group II patients, and the differentiation between them was found to be reliable. According to the above analyzes, the incidence of DAS-28, which indicates the activity of the disease, and the amount of ESR, which is a sign of inflammation, kidney damage was noted to be higher in patients with RA.

Among patients with kidney damage in Group I according to the fee index, which is an indicator of patient health assessment,patients with no observed functional disorders accounted for 1nafar – 1.8%, patients with observed mininmal disorders 8-10.5%, moderate changes accounted for -38.6% in 20, and pronounced disorders accounted for 28 – 40.9%. Functional disorders were not found in 2 group patients who had kidney damage with RA and they were 18 – 34%, patients with minimal damage were 21 – 40%, average damage was 11 -20.7%, and apparent damage was 3-5. 3%.

Patients with Group I kidney damage with RA had a HAQ index of 1.8±0.06, indicating that functional disorders in the RA with kidney damage were evident. In the case of Group II patients, however, the HAQ index is 1.0±0.08, indicating that patients have minimal functional deficits in their joints, the differentiation between which has been reliable (-ρ<0.001). This indicates that the remuneration index, which is an indicator for assessing the health of patients when the duration of the disease lasts for a long time, accompanied by kidney dysfunction, is also high (diagram-2).

Diagram 2.

Analysis of the study group of patients according to the HAQ index.



C reactive protein (CRP), another marker of inflammation in RA patients, was also examined and compared between the two groups. It was 28.5±2.0 (-r<0.001) in patients of group I, and 13.0±1.3 (-r<0.001) in patients of group II, and the difference between them was considered reliable. Long-term high levels of CRP in patients with diabetes can cause kidney dysfunction.

In group I patients with high renal dysfunction with RA,number of swollen joints

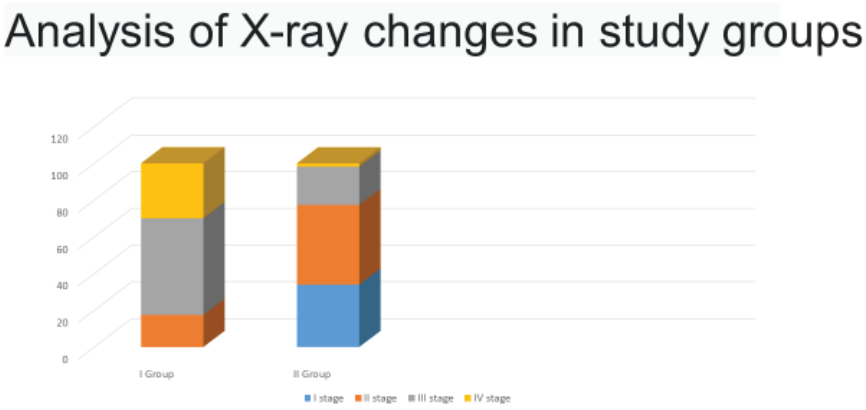
(2.9±0.24) and number of painful joints (4.4±0.30) were higher compared to those in group II, number of swollen joints(1.3±0.14) and number of painful joints(1.8±0.19) were recorded and therefore the difference between them was considered reliable (-r<0.001).RA patients in both groups underwent an R-graph examination to assess the condition of the joint.

When comparing the radiological parameters of the two groups of patients, the I stage in the patients of the I group and the I stage in the patients of the II group was equal to 24.5±6.0, and the difference between them was found to be reliable (-r<0.001), the I group II stage in patients was 14.0±4.6 and II stage in patients of II group was 39.6±6.8, and the difference between them was found to be reliable (-p<0.01). Stage III in patients of group I was 35.1±6.4 and stage III in patients of group II was equal to 17.0±5.2, and the difference between them was determined as relatively reliable (-

p<0.05). Comparing IV stage 28.1±6.0 in group I patients with IV stage 5.7±3.2 in group II patients, the difference between them was found to be relatively reliable (-p<0.01). It was observed that the indicators of the X-ray stage were higher in patients of group I with kidney damage than in patients of group II. According to this result, it was found that kidney damage is more common in RA patients with high X-ray stage (Diagram-3).

Diagram 5.

Comparative analysis according to X-ray changes in both groups.



According to the clinical stage of the patients in both groups of the study, the early stage of the I group was 43.9±6.6, the early stage of the II group was 56.6±6.9, the expressed stage was 21.1±5.5, and 20.8 ±5.6, late stage 35.1±6.4 and late stage 22.6±5.8 were compared, the difference between them was found to be reliable -r<0.05. It was found that kidney damage is more common in patients with advanced and late stages of RA. According to the results of the clinical course of the disease in the I group of patients, 43.9±6.6 compared to the II group 80.0±13.3 in the period up to 5 years (-p<0.05), 10 in the period of more than a year, group I 35.1±6.4 compared to group II 10.0±10.0 was found to be a reliable difference (-r<0.05) (Table 4). It was found that the longer the period of the disease in patients with RA, the more often kidney damage occurs in these patients.

Table 2

		RA (+KD), n=57		RA (-WKD), n=53	
		abs.	**%**	**abs.**	**%**
Clinical period	Less than 5years	25	43,9±6,6	30	56,6±6,9
	5-10 years	12	21,1±5,5	11	20,8±5,6
	More 10years	20	35,1±6,4	12	22,6±5,8
Clinicalstage	Early	4	7,0±3,4	20	37,7±6,7^^^
	Progressive	25	43,9±6,6	18	34,0±6,6
	late	28	49,1±6,7	15	28,3±6,2^

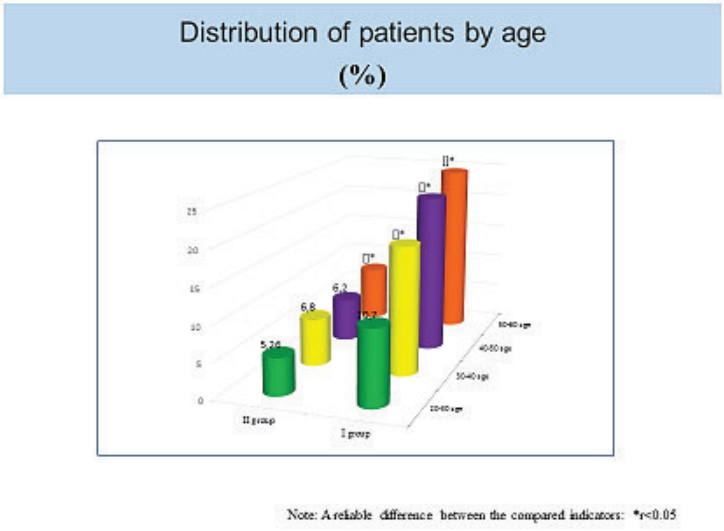
Note: *The difference is reliable (^-r<0.05? ^^^-r<0.001) compared to the rate of patients with rheumatoid arthritis and kidney damage.*

According to the results of the statistical analyzes carried out by age in both groups, a relatively reliable difference was found between the comparative analyzes of patients in group I and group II (-p<0.05). According to the statistical analysis of the age of the patients: 51.7±1.6 years in group I and 47.2±1.8 years in group II, the relative difference between the indicators is reliable (-p<0.05), the relative difference between the II group and the control group was found to be reliable (-r<0.05).

It was observed that the frequency of kidney damage increases with the age of the patients included in the study.

Diagram 4.

Distribution of kidney damage in RA by patient age (%)



Note: A reliable difference between the compared indicators: *r<0.05

Conclusion. It was found that kidney damage in patients with rheumatoid arthritis is associated with high disease activity, disease duration of more than 10 years, age of patients over 50 years, and high radiological stage. Based on the results of the study, patients were divided into groups with a high risk of kidney damage, these patients were monitored, and the stages of chronic kidney disease were determined.

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