УДК: 612.465:616.61]:616.72-002.77-092.9-036-084

CHRONIC KIDNEY DISEASE IN PATIENTS WITH RHEUMATOID ARTHRITIS: CLINICAL AND DIAGNOSTIC FEATURES

Mustafayeva Sh A

Abu Ali ibn Sino Bukhara State Medical Institute Uzbekistan, Bukhara, A.Navoi Street. Tel: +998 (65) 223-00-50 e-mail: info@bsmi.uz https://orcid.org/0009-0001-7194-3386

Summary: *The review presents the concept of chronic kidney disease (CKD) in nephrology. The characteristics of the risk of kidney damage in patients with rheumatoid arthritis are discussed. One of the pressing problems in modern medicine is kidney damage in rheumatoid arthritis. Issues of the prevalence and risk factors for chronic kidney disease are considered. The kidneys are affected more often in rheumatoid arthritis than they are diagnosed. Consequently, early diagnosis of kidney damage in patients with rheumatoid arthritis has important clinical and prognostic significance. Possible morphological variants and mechanisms of kidney damage are also considered. In rheumatoid arthritis, the occurrence of chronic kidney disease depends primarily on the duration of the disease and the nature of the inflammatory process. These data are now fully confirmed. The problem of kidney damage in rheumatoid arthritis has not been fully studied and requires further research.*

Keywords: *rheumatoid arthritis, risk factor, amyloidosis, chronic kidney disease, glomerulonephritis.*

ХРОНИЧЕСКАЯ БОЛЕЗНЬ ПОЧЕК У БОЛЬНЫХ РЕВМАТОИДНЫМ АРТРИТОМ: КЛИНИКО-ДИАГНОСТИЧЕСКИЕ ОСОБЕННОСТИ

Мустафаева Ш.А

Абу али ибн Сино номидаги Бухоро давлат тиббиёт институти Ўзбекистон, Бухоро ш., А.Навоий кўчаси. 1 Тел: +998 (65) 223-00-50 e-mail: info@bsmi.uz https://orcid.org/0009-0001-7194-3386

Резюме: *В обзоре представлена концепция хронической болезни почек (ХБП) в нефрологии. Говорится о характеристике причины риска поражения почек у больных с ревмотоидным артритом. Одной из актуальных проблем современной медицине поражению почек при ревмотоидном артрите. Рассматриваются вопросы распространенности и факторов риска хронической болезни почек. Почки поражаются при ревматоидном артрите чаще, чем его диагностируют. Вследствие этого ранняя диагностика поражения почек у больных ревмотоидный артрит имеет важное клиническое и прогностическое значение. Также рассмотрены возможные морфологические варианты и механизмы поражения почек. При ревматоидном артрите возникновение хронической болезни почек*

зависит, прежде всего, продолжительность заболевания и характера воспалительного процесса. Эти данные полностью подтверждаются в настоящее время. Проблема поражения почек при ревматоидном артрите мало изучена и требует дальнейших исследований.

Ключевые слова: *ревмотоидный артрит, фактор риска, амилоидоз, хроническая болезнь почек, гломерулонефрит.*

Rheumatic diseases are the oldest human pathology and are considered the most common disease of the 21st century. In recent decades, there has been a certain progress in the field of theoretical and clinical rheumatology. According to E.A. Galushko and E.L. Nasonov, rheumatic diseases include more than 80 diseases and syndromes [31].

Rheumatoid arthritis (RA) is an autoimmune disease characterized by the development of chronic destructive polyarthritis with the involvement of other systems in the pathological process. Extra-articular systemic lesions in RA can have a serious impact on the prognosis of the disease [8, 39].

Масштабное исследования, проведенные в последние годы, продемонстрировали ассоциацию РА с высоким риском хронической болезни почек (ХБП) и сердечно-сосудистых осложнений, что связано с повышением смертности в этой категории пациентов [9, 27,18].

The spectrum of renal pathology underlying CKD in RA is quite broad. Secondary amyloidosis has occupied a leading position among nephropathy variants in RA patients for many years [23,44]. According to some studies, there is a trend towards changes in the structure of kidney damage in RA [5], taking into account the use of highly effective treatment regimens, including genetic engineering drugs, which serves as an additional prerequisite for studying this category of patients.

Previously, in the works of V.A. Nasonova, it was noted that RA is more common in women than in men (4:1). Moreover, the frequency of RA occurrence in women increases with age [40]. Moreover, it has been established that RA occurs more frequently among relatives of patients with the first degree of kinship than in the general population. These data are now fully confirmed [3].

The formation of nephropathies in RA is multifactorial, represented by the diversity of their clinical and morphological variants with minor, nonspecific changes in urine tests. The course of rheumatoid nephropathy, like other chronic kidney diseases, is progressive with the development of nephrosclerosis and a decrease in the placenta of functioning nephrons, with the outcome of chronic renal failure, with an extremely unfavorable prognosis, which determines the importance of early diagnosis and treatment of nephropathies in RA. Kidney pathology is found in RA with a high frequency - about 60%, according to various authors [36].

In RA patients, various kidney diseases can occur: secondary renal amyloidosis, glomerulonephritis, interstitial nephritis, renal vasculitis, nephrosclerosis, and in some cases, their combinations [30,37]. Etiologically, kidney damage in RA patients can be

conditionally divided into 2 groups: firstly, nephropathy as one of the extraarticular manifestations or complications of RA itself, for example, renal vasculitis, chronic glomerulonephritis, secondary amyloidosis, and secondly, as a complication of drug therapy for RA: analgesic nephropathy (AN), drug-induced glomerulonephritis.

The pathogenesis of such different kidney diseases cannot be the same. A certain contribution to the progression of chronic kidney disease is made by disorders in the hemostasis system, endothelial dysfunction [41,43,24], the frequency of disease exacerbations, the presence of crescents, and the severity of tubulointerstitial changes in the nephrobioptat [21].

In patients with rheumatoid vasculitis of the renal vessels, a slight transient decrease in renal function is more often detected along with transient hematuria, indicating local inflammation, and severe renal failure is rarely observed [38,1].

The spectrum of renal pathology underlying CKD in RA is quite broad. Secondary amyloidosis has occupied a leading position among nephropathy variants in RA patients for many years [45,28]. According to some studies, there is a tendency towards changes in the structure of kidney damage in RA [6].

Many researchers have noted that in RA patients, the development of CKD and the severity of its manifestations are determined by the duration and activity of the underlying disease, age, the presence of arterial hypertension (AH), lipid metabolism disorders, and hyperglycemia [46, 2, 17].

The unfavorable prognostic significance of kidney damage in rheumatoid arthritis (RA) has been actively attracting researchers' attention in recent years [10]. Certain clinical variants of kidney involvement in the pathological process in rheumatoid arthritis are noted in most patients [33].

Various variants of kidney damage in rheumatoid arthritis have been described, in particular, glomerulonephritis, amyloidosis, vasculitis, as well as iatrogenic forms (analgesic tubulopathies, membranous nephropathy, etc.) [35,29,32].

Early manifestations of functional renal disorders, especially with moderate severity, do not always attract the attention of clinicians, while the progression of chronic renal disease (CHD) in RA can be rapid, especially in old age, as well as in association with cardiovascular pathology [11,14]. According to some researchers, the development of CHD in RA can be associated with cardiovascular damage to a greater extent than with the activity of RA itself [16].

Currently, the leading pathogenetic mechanism for the development of glomeruli and tubuointerstitial changes in the kidneys is chronic inflammation. In particular, elevated levels of C-reactive protein (CRP) in RA patients cause dysfunction of the glomerular vessel endothelium and trigger the synthesis of pro-inflammatory cytokines. [20.25]. Previously published works have shown that in RA patients treated with cytokine inhibitors, kidney function remained stable for a long time [19]. According to other data, in RA and renal amyloidosis, therapy with alpha tumor necrosis factor inhibitors led to a simultaneous decrease in proteinuria [4,7].

The study of the pathogenesis of glomerulonephritis continues, as existing treatment methods do not have the desired effectiveness [34]. A connection has been proven between glomerulonephritis and changes in cytokine synthesis balance associated with immune response mechanisms [13,22]. It has been established that cytokines participate in the regulation of proliferative processes, differentiation, growth, and cell activity [12,26]. The quantitative content of cytokines and their ratio reflect the dynamics of the pathological process, correlate with the activity of the disease, which allows us to judge the effectiveness of the ongoing therapy and predict the outcome of the disease [42].

LIST OF USED LITERATURE:

1.Bacon P.A., Moots R.J. Extra-articular rheumatoid arthritis // In Koopman W.J. Arthritis and allied conditions. 13-th. Ed. -1997. P.1071-1089.

2.Crowson CS, Matteson EL, Myasoedova E, et al. The lifetime risk of adult-onset rheumatoid arthritis and other inflammatory autoimmune rheumatic dis-eases // Arthritis Rheum. 2011 Mar;63(3):633-9.doi:10.1002/art.30155

3.England BRM, Mikuls TR. Epidemiology of, risk factors for, and possible causes of rheumatoid ar-thritis.2020.

4.Fernández-Nebro A, Tomero E, Ortiz-Santamaría V, et al. Treatment of rheumatic inflamma-tory disease in 25 patients with secondary amyloidosis using tumor necrosis factor alpha antagonists // Am J Med. 2005;118(5):52-556.doi:10.1016/j.am-jmed.2005.01.028

5.Gois M, Carvalho F, Sousa H, et al. Renal involvement in rheumatoid arthritis: analysis of 53 renal biopsies. Port J Nephrol Hypert. 2017;31(1):25-30.

6. Galarraga B, Khan F, Kumar P, et al. C-reactive protein: the underlying cause of icrovascular dysfunction in rheumatoid arthritis. Rheumatology (Oxford). 2008;47(12):1780-4. doi: 0.1093/rheumatology/ken386

7.Gottenberg JE, Merle-Vincent F, Bentaberry F, et al. Anti-tumor necrosis factor alpha therapy in fif-teen patients with AA amyloidosis secondary to inflam-matory arthritides: a followup report of tolerability and efficacy // Arthritis Rheum. 2003;48(7):2019-2024. doi:10.1002/art.11163

8.Hickson LJ, Crowson CS, Gabriel SE, et al. Development of reduced kidney function in rheumatoid arthritis. Am J Kidney Dis. 2014;63:206-13. doi: 0.1053/j.ajkd.2013.08.010

9. Helin HJ, Korpela MM, Mustonen JT, Pasternack AI. Renal biopsy findings and clinicopathologic correlations in rheumatoid arthritis. Arth Rheum. 1995;38(2):242-7. doi: 10.1002/art.1780380213

10. Helin H.J., Korpela M.M., Mustonen J.T., Pasternack A.I. Renal biopsy findings and clinicopathologic correlations in rheumatoid arthritis // Arthritis Rheum. 1995. V. 38 (2). P. 242—247.

11.Hickson LJ, Crowson CS, Gabriel SE. Development of Reduced Kidney Function in Rheumatoid Arthritis. Am J Kidney Dis 2014;63(2): 206-213

12.Ifuku M., Miyake K., Watanebe M. et al. Various roles of Th cytokine mRNA expression in different formsof glomerulonephritis. Amer. J. Nephrol. 2013; 38 (2):115–123. DOI: 10.1159/000353102.

13.Imig J.D., Ryan M.J. Immune and inflammatory role in renal disease. Compr. Physiol. 2013; 3 (2): 957–976.DOI: 10.1002/cphy.c120028

14. Ingrasciotta Y., Sultana J., Giorgianni F. et al. Association of Individual Non-Steroidal Anti- Inflammatory Drugs and Chronic Kidney Disease: A Population-Based Case Control Study // PLoS One. – 2015; 10 (4): e0122899. DOI: 10.1371/journal.pone.0122899.

15.Jesky M, Lambert A, Burden A. The impact of chronic kidney disease and cardiovascular comorbidity on mortality in a multiethnic population: a retrospective cohort study. BMJ Open 2013;3(12). doi 10.1136/bmjopen-2013-003458

16. Joss N., McLaughlin K., Simpson K., Boulton-Jones J. M.// Q. J. Med.— 2000.— Vol. 93.— P. 535—542.

17. Khamroyeva Y.S. Early Diagnosis of Systemic Scleroderma // Procedia of Engineering and Medical Sciences-2022. №01.P.31-38.

18.Kim HW, Lee CK, Cha HS, et al. Effect of anti-tumor necrosis factor alpha treatment of rheumatoid arthritis and chronic kidney disease. Rheumatol Int. 2015;35(4):727-34. doi: 10.1007/s00296-014-3146-4

19. Komhoff M., Grone H.J., Klein T. et al.Localization of cyclooxygenase-1 and -2 in adult and

fetal human kidney: implication for renal function //Am. J. Physiol. 1997. Vol. 272. P. 460–468.

20.Kochi M, Kohagura K, Shiohira Y, et al. In-flammation as a Risk of Developing Chronic Kidney Disease in Rheumatoid Arthritis // PLOS ONE. 2016. doi:10.1371/journal.pone.016022

21.Koseki Y., Terai C., Moriguchi M. et al. A prospective study of renal disease in patients with early rheumatoid arthritis // Ann. Rheum. Dis. 2001. V. 60 (4). P. 327—331

22.Kurts Ch., Panzer U., Anders H.-J., Rees A.J. The immune system and kidney disease: basic concepts and clinical implications. Nature Rev. Immunol. 2013; 13: 738–753. DOI: 0.1038/nri3523

23.LV. Revmatoidnyj artrit kak osnovnaya prichina razvitiya AAamiloidoza.Klinicheskaya gerontologiya. 2009;15(2):14-20 (In Russ.)

24.Sanchez-Lorada I.G., Tapia E., Avila-Cazado C. Mild hyperuricemia induces glomerulas hypertension in normal rats // Am. J. Physiol. Renal Physiol. 2002. V. 2823 (5). P. 1105—1110.

25.Shankar A, Sun L, Klein BE, et al. Markers of inflammation predict the long-term risk of developing chronic kidney disease: a population-based cohort study // Kidney Int. 2011;80(11):1231-8.doi:10.1038/ki.2011.283

26.Suárez-Fueyo A., Bradley S.J., Klatzmann D.,Tsokos G.C. T-cells and autoimmune kidney disease.Nature Rev. Nephrol. 2017; 13: 329–343. DOI: 10.1038/nrneph.2017.34.

27. Teshaev S. Z., Saidova M. M., Mustafaeva S. A. Clinical and Morphological Changes in Kidney Damage in Rheumatoid Arthritis //Research Journal of Trauma and Disability Studies. – 2022. – Т. 1. – №. 6. – С. 46-51.

28Varshavskij VA, et al. Osobennosti techeniya AA-amiloidoza u bol`ny`kh revmatoidny`m artritom. Therapeutic Archive. 2006;78(5):31-6 (In Russ.)

29.Zhigalov SA, Marasaev VV, Bazhina OV. Glomerulyarnye porazheniya pochek pri revmatoidnom artrite. Klin nefrol 2013;6:42-45

30.Балабанова Р. М. Ревматоидный артрит // В кн.: Руководство по внутренним болезням. Ревматические болезни.Под ред. В. А. Насоновой, Н. В. Бунчука. - М .: Медицина, 1997. - С. 257-295.1

31.Галушко ЕА, Насонов ЕЛ. Распространенность ревматических заболеваний в России. Альманах клинической медицины. 2018;46(1):32–39.doi:10.18786/2072-0505-2018-46- 1-32-39.

32.Гасанов МЗ, Батюшин ММ, Терентьев ВП, Садовничая НА. Особенности протеомного зеркала мочи пациентов с ломерулонефропатиями различного генеза. Кубанский научный медицинский вестник 2012:4:37-42 [Gasanov MZ,Batyushin MM, Terent'ev VP, Sadovnichaya NA. Osobennosti proteomnogo zerkala mochi pacientov s glomerulonefropatiyami razlichnogo geneza. Kubanskij nauchnyj medicinskij vestnik 2012:4:37-42

33.Демидова НВ, Гусева ИА, Каратеев ДЕ. Клинико-иммунологические аспекты раннего ревматоидного артрита.Тер арх 2010; 5:71-77 [Demidova NV, Guseva IA, Karateev DE.Kliniko-immunologicheskie aspekty rannego evmatoidnogo artrita.Ter arh 2010; 5:71-77

34.Детская нефрология. Руководство для врачей.Под ред. М.С. Игнатовой. Изд. 3-е, перераб. и доп.М.: МИА. 2011; 696 с. [Detskaya nefrologiya. (Pediatricnephrology.) Ed. by M.S. Ignatova. 3d ed. Moscow: MIA. 2011; 696 p. (In Russ.)

35.Жигалов СА, Марасаев ВВ, Бажина ОВ. Гломерулярные поражения почек при ревматоидном артрите. Клин нефрол 2013;6:42

36.Крель А.А.. Варшавский В.А.. Каневской М.З., Семейкина О.В. Поражение почек у больных ревматоидным артритом // Тер. архив. - 1990. - № 6. - С. 104-113.6, 15.Boers M. Renal disorders in rheumatoid arthritis II Arthr. Rheum. - 1990. - Vol.20. - P.57-68. 49, 26.Nacano M., Veno M., Nishi S. et al. Analisis of renal patology and drug histori in 158 Japanese patients with rheumatoid arthritis // Clin Nephrol. -1998. - Vol.50. - P. 154-166

37.Крель А.А.. Варшавский В.А.. Каневской М.З., Семейкина О.В. Поражение почек у больных ревмато идным артритом // Тер. архив. - 1990. - № 6. - С. 104-113.6, 15.Boers M. Renal disorders in rheumatoid arthritis II Arthr. Rheum. - 1990. - Vol.20. - P.57-68.

38.Насонов Е.Л., Баранов А.А., Шилкина Н. П. Вас- кулиты при ревматических заболеваниях // В кн. Васкулиты и васкулопатии. Ярославль: «Верхняя Волга», 1999.-С.515 - 540.

39.Насонов Е.Л., Каратеев Д.Е., Балабанова Р.М. Ревматоидный артрит. В кн.: Ревматология. Национальное руководство. Под. ред.Е.Л. Насонова, В.А. Насоновой. М.: ГЭОТАР-Медиа, 2008; с. 290-331 [Nasonov EL, Karateev DE, Balabanova RM. Rheumatoid arthritis.In: Rheumatology. National Guide. Nasonov EL, Nasonova VA, ed.Moscow: GEOTAR-Media, 2008; p. 290-331 (In Russ.)

40.Насонова ВА, Астапенко МГ. Клиническая ревматология: Руководства для врачей. АМН СССР. М. Медицина, 1989.С.592.

41.Наточина Н.Ю. Тромбоцитарное звено гемостаза и коррекция его нарушений при гломерулонефритах у детей: дис. канд. мед. наук. СПб., 2000. 160 с.

42.Орадова А.Ш., Устенова Г.О., Стабаева Г.С. Методы исследования цитокинов (обзорная статья). Medicine. 2014; (10): 84–87. [Oradova A.Sh., Ustenova G.O., Stabaeva G.S. Methods of cytokine research (review article). Medicine. 2014; (10): 84–87. (In Russ.)

43.Ратнер М.Я., Серов В.В., Варшавский В.А. и др. Прогностические факторы ускоренного прогрессирования хронического гломерулонефрита и хронических невоспалительных нефропатий // Терапевт. арх. 1998. № 6. С. 7—11.

44.Саркисова И.А., Рамеев В.В., Варшавский В.А. и др. Особенности течения АА-амилоидоза у больных ревматоидным артритом. Терапевтический архив. 2006; 78(5):31-6 [Sarkisova IA, Rameev VV,Varshavskij VA, et al. Osobennosti techeniya AA-amiloidoza ubol`ny`kh revmatoidny`m artritom. Therapeutic Archive. 2006;78(5):31-6 (In Russ.)].

45. Хамроева Ю., Кодирова Ш., Джабборова М. Факторы сердечно-сосудистого риска у пациентов с артериальной гипертонией и сахарным диабетом 2 типа //Журнал вестник врача. – 2019. – Т. 1. – №. 2. – С. 121-126.

46.Щаднева СИ, Калягин АН. Поражения почек при ревматических заболеваниях // Современные проблемы ревматологии.2014;6:6:10-26.