

Examination of Rheumatoid Arthritis Patients Aged 80 and Over: Focus on Renal Function

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Abstract

Introduction: We investigated the percentage of chronic kidney disease in rheumatoid arthritis patients over 80 years of age.

Subjects and Methods: Rheumatoid arthritis (RA) who were over 80 years of age and were undergoing follow-up observation at Sakai Sakibana Hospital from July 2024 to June 2025. The participants' demographic information was surveyed.

Results and Discussion: A total of 105 patients were included. The patient information was as follows: age, 80-98 years; gender, male, n = 24; female, n = 81. In this study, medication for prednisolone and/or methotrexate and/or leflunomide patients decreased, but use of biopharmaceutical or Janus kinase inhibitor patients increased. The mean estimated glomerular filtration rate was 53.3 ± 12.6 (range 24 to 88) mL/min/1.73m². Hemoglobin level ranged from 8.7 to 15.4 (mean 12.0 ± 1.4) mg/dL. The findings of this study indicate that chronic kidney disease (CKD) was a substantial concern in RA patients of over 80 years of age (G3a or higher, 66.7%). Therefore, there is a need to increase treatment for anemia in elderly patients with RA.

Conclusion: The percentage of CKD in RA patients increase with age in Japan.

Keywords: Chronic Kidney Disease; Estimated Glomerular Filtration Rate; Rheumatoid Arthritis; Over 80 Years of Age

Abbreviations

RA: Rheumatoid Arthritis; CKD: Chronic Kidney Disease; BIO: Biopharmaceutical; JAK-I: Janus Kinase Inhibitor; MTX: Methotrexate; LEF: Leflunomide; PD: Prednisolone; eGFR: Estimated Glomerular Filtration Rate; Hb: Hemoglobin

Introduction

Japan, a nation undergoing rapid super-aging, has identified the extension of healthy life expectancy as a primary objective. Rheumatoid arthritis (RA) is a systemic inflammatory disease that has historically been associated with a shorter-than-average life expectancy. However, advances in medication and early treatment, along with changes in the choice of medications for chronic kidney disease (CKD), have led to an aging patient population. In a previous study, we reported a high prevalence of CKD among outpatients of RA [1] and surgical status of Orthopedic patients over 70 years of age [2]. The present study investigated CKD in RA patients over 80 years of age.

Study Population and Methods

This study included patients diagnosed with RA who were over 80 years of age and were undergoing follow-up observation at Sakai Sakibana Hospital from July 2024 to June 2025. The participants’ demographic information, including age, gender, RA stage and class, medical history, duration at onset, osteoporosis and chronic pain medications and biopharmaceutical (BIO) and Janus kinase inhibitor (JAK-I) medical treatments, surgical treatment, complications, dementia, and prognosis, were surveyed.

Results

A total of 105 patients were included. The patient information was as follows: age, 80-98 years; gender, male, n = 24; female, n = 81; RA disease stage 1, n = 8; stage 2, n = 29; stage 3, n = 2; stage 4, n = 66; class 1, n = 8; class 2, n = 65; class 3, n = 30; class 4, n = 2; duration at onset, 1-50 years (mean 16.7 ± 11.6 years); age at onset under 64 years, n = 47; age at onset over 65 years (elder onset rheumatoid arthritis: EORA), n = 58; osteoporosis treatment, n = 72; chronic pain medication, n = 16; and orthopedic surgery, n = 46 (total replacements, fractures and spinal events so on). Prior treatments were as follows: methotrexate (MTX)/leflunomide (LEF), n = 39 patients; prednisolone (PD), n = 30; BIOs/JAK-Is, n = 37. Ultimately, PD/MEX/LEF decreased to 28 patients, BIOs/JAK- Is increased to 54 patients (Abatacept, n = 12; Etanercept, n = 10; Baricitinib, n = 7; Filgotinib, n = 5; Tocilizumab, Upadacitinib and Tofacitinib, n = 4, Sarilumab, n = 3; Adalimumab and Infliximab, n = 2; Golimumab, n = 1, and burned out in four patients. Lymphoma developed in two but these patients recovered; dementia developed in 11 patients; six patients died (Table 1. All of them were not worse in kidney function) during the study period and three were transferred to another facility.

Cases	Duration	Complication	Medication	eGFR	Hb	Final events
89yo-F, S4C3	30 years	Multi-fractures, CHF, cancer	MTX and PD	43	11	None at home
83yo-F, S4C3	25 years	CHF, IP, dementia	IGC	50	11.2	None at facility
95yo-F, S4C3	24 years	Multi-spinal surgery	MTX → PD	58	11.6	None at home
88yo-M, S3C2	4 years	Hypertension, DM	MTX and SASP	68	12.4	MI
85yo-F, S2C3	2 years	Parkinson, dementia	SASP	ND	ND	None at home
84yo-F, S2C2	2 years	CHF, IP, multi fractures	MTX → PD	27	9.4	pneumonia

Table 1: Six cases died in this study.

F: Female, M: Male, S: Stage, C: Class, CHF: Chronic Heart Failure, IP: Interstitial Pneumonia, IGC: Iguratimod, DM; Diabetes Mellitus, MI: Myocardial Infarction, ND; No Data.

Comparison by onset age group

We compared patients according to the age of onset (Group A, under 64 years; Group B = EORA, over 65 years; Group C, onset under 5 years within Group A and B), Group A exhibited a higher disease stage, longer disease duration, more surgical cases, higher rate of final use of BIOs/JAK- Is, and a higher incidence of lymphoma. Conversely, Group B patients had higher rates of osteoporosis treatment, chronic pain treatment, and mortality. When the analysis was limited to Group C, the patients showed higher rate stage 2 and class 2 (over 50%), lower rates of osteoporosis and chronic pain treatment, increased usage of PD/MTX/LEF, and lower usage of BIOs/JAK-Is. Three deaths ultimately in this group.

Renal function and anemia testing

Ninety-nine of the 105 patients underwent measurements of estimated glomerular filtration rate (eGFR) and hemoglobin (Hb) level. The mean eGFR was 53.3 ± 12.6 (range 24 to 88) mL/min/1.73m². The CKD classifications were as follows: Stages: G 0 (range 100-120

, normal) and G1 (range ≥ 90 , within normal), n = 0; G 2 (range 60-89, kidney damage but normal eGFR), n = 33; G 3a (range 45-59, kidney damage with mild decline), n = 39; G 3b (range 30- 44, kidney damage with moderate decline), n = 24; G 4 (range 15-29, kidney damage with severe decline), n = 3; and G 5 (range under 14, kidney failure), n = 0. Hb level ranged from 8.7 to 15.4 (mean 12.0 ± 1.4) mg/dL. Based on the Hb level, anemia was present in 10 males (under Hb 12) and 21 females (under Hb 11) patients. Total 29 patients required further testing. Twenty patients were prescribed iron agents and five were prescribed erythropoietin or hypoxia inducible factor medicine. There were no significant differences according to Age at onset; however, Group A had a higher proportion of patients receiving treatment for anemia alone. Summarized data for all groups in table 2.

	Group A	Group B	Group C
Age onset	Under 65	Over 65	Onset under 5 years
Stage 1	0	8	6
Stage 2	5	24	10 (50%)
Stage 3	1	1	1
Stage 4	41 (87.2%)	25 (46.5%)	3
Class 1	3	5	6
Class 2	28 (61.7%)	37 (63.8%)	11 (55%)
Class 3	18	12	3
Class 4	1	1	0
eGFR	24-88	24-75	24-75
Average	54.1 ± 12.0	51.8 ± 13.7	50.7 ± 16.4
G0 and G1	0	0	0
G2	15 (33.3%)	18 (33.3%)	7 (35%)
G3a	21 (46.7%)	18 (33.3%)	4 (20%)
G3b	9 (20.0%)	15 (27.8%)	5 (25%)
G4	0	3	3
G5	0	0	0
Hb	8.7-15.1	8.7-15.4	9.7-14.1
Average	11.9 ± 1.4	11.9 ± 1.5	11.9 ± 1.4
Anemia	12 (26.7%)	19 (35.2%)	7 (35%)
Medication	21 (46.7%)	4 (7.4%)	2 (10%)

Table 2: Backgrounds in three groups.

Discussion

The findings of this study indicate that CKD was a substantial concern in RA patients of over 80 years of age (G3a or higher, 66.7%). On 2016, we reported eGFR under 60 were in RA to 27% and over 70 years old to 41.6% [1]. CKD increased with age. Japanese RA patients are relatively small in stature. As a result, the management strategies included a reduction or discontinuation of MTX, the reduction or spacing of BIOs [3] and JAK-Is, and anemia countermeasures. CKD-related renal anemia is a significant concern regarding perioperative safety measures in surgical setting [2,4], particularly as it may occur with aging. Sometimes, we tried to treat for RA combined CKD using dotinurad and/or sodium-glucose cotransporter 2 inhibitor [5]. Therefore, there is a need to increase treatment for CKD and anemia in elderly patients with RA.

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Conflict of Interest

No potential conflict with this article was reported.

Bibliography

1. H Kasuga., *et al.* "Surgical status of patients with orthopedic disease based on the estimated glomerular filtration rate". *EC Orthopaedics* 4.1 (2016): 450-452.
2. H Kikuchi., *et al.* "Surgical status of orthopedic patients aged 70 years and older with a focus on renal function". *EC Orthopaedics* 11.10 (2020): 45-48.
3. Y Ito., *et al.* "Clinical effects of half and full-dose abatacept are equivalent". *Journal of Indian Orthopaedic Rheumatology Association* 2.1 (2016): 33-40.
4. W Shimada., *et al.* "Differences in perioperative patient autologous blood management for instrumental spinal surgery". *EC Orthopaedics* 13.3 (2022): 15-18.
5. S Matsui., *et al.* "Empagliflozin protects the kidney by reducing toxic albumin exposure and preventing autophagic stagnation in proximal tubules". *Autophagy* 21.3 (2025): 583-597.

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