Conclusion: Patients with RA and LVDD have a higher disease activity, so emphasis should be placed on strict antirheumatic treatment and cardiovascular therapies to avoid the risk of developing CVD and the progression to heart failure. Logistic regression demonstrates that inadequate disease control is an independent factor from traditional CVRFs for the presence of LVDD.

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Figure 1. Classification of disease activity by DAS28-CRP

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POS0553

IMPACT OF RHEUMATOID ARTHRITIS ON LEFT VENTRICULAR REMODELING

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Background: Patients with Rheumatoid Arthritis (RA) have a higher prevalence of cardiovascular diseases (1) and a strong association with abnormalities in the left ventricle (LV) geometry. Both concentric and eccentric remodeling have been determined as an independent factor for sudden cardiac arrest in the general population with normal or slightly decreased ventricular function (2) but there is still controversy about the factors involved and the pathophysiology in patients with RA.

Objectives: The aim of the study is to determine the characteristics of LV geometry and the impact of RA.

Methods: A cross-sectional, observational, and comparative study of fifty-two RA patients that fulfilled ACR / EULAR 2010 classification criteria, aged 40-75 years. Controls were included and matched by age, gender, and comorbidities. Subjects were evaluated using a transthoracic echocardiogram performed and reviewed by two certified echocardiographers. Ventricular geometry was evaluated with indexed left ventricular mass and relative wall thickness. Distribution was evaluated with the Kolmogorov-Smirnov test. Descriptive analysis was done using measures of central tendency. Chi square, Student's t test and Mann-Whitney U test were used for comparisons between groups. A logistic binary regression was performed with the traditional cardiovascular risk factors (CVRFs), age and RA diagnosis. A *p* value <0.05 was considered statistically significant.

Results: No significant differences were found in the traditional CVRFs (type 2 diabetes mellitus, dyslipidemia, active smoking, and hypertension) (Table 1). Most of the subjects reported normal geometry in both groups (55.8% for RA group vs 64.0% for controls). A higher prevalence of eccentric hypertrophy was found in the RA group, 13 (25%) subjects versus 3 (6%) in the control group, *p* = 0.009. The binary regression showed that the diagnosis of RA was the only independent risk factor for the presence of eccentric hypertrophy, OR 7.22 95% CI (1.68-31.02, *p* = 0.008).

Table 1. Demographic characteristics and echocardiographic findings.

	RA (n=52)	Control (n=50)	<i>p</i>
Age, years ± DE	51.4 ± 6.2	51.1 ± 5.5	NS
Women, n (%)	51 (98.1)	49 (98.0)	NS
Active smoking, n (%)	8 (15.4)	8 (16.0)	NS
Dyslipidemia, n (%)	11 (21.2)	13 (26.0)	NS
Type 2 Diabetes Mellitus, n (%)	5 (9.6)	5 (10.0)	NS
HTN, n (%)	8 (15.4)	10 (20.0)	NS
BMI kg/m ² , median (p25-p75)	27.8 (24.5-31.4)	28.3 (25.4-30.3)	NS
BSA, median (p25-p75)	1.7 (1.6-1.8)	1.8 (1.6-1.9)	0.003
Systolic blood pressure, mmHg (p25-p75)	119.5 (110.0-127.5)	120.0 (110.7-130.0)	NS
Echocardiography findings			
LVPWTD, median (p25-p75)	0.9 (0.8-1.0)	0.9 (0.8-1.0)	NS
LVIDd, median (p25-p75)	4.8 (4.3-5.2)	4.6 (4.5-4.9)	NS
LV mass, median (p25-p75)	131.2 (119.5-155.7)	131.2 (113.2-154.3)	NS
LV mass index, median (p25-p75)	78.6 (69.7-95.6)	76.0 (66.7-84.6)	NS
RWT, mean ± SD	0.4 ± 0.09	0.4 ± 0.07	NS

NS, no significant; BMI, body mass index; BSA, body surface area; LVPWTD, left ventricular posterior wall thickness at end-diastole; LVIDd, left ventricular internal dimension at end-diastole; RWT, relative wall thickness.

Conclusion: There is a higher prevalence of eccentric remodeling in patients with RA independently of traditional CVRF. The diagnosis of RA is an independent risk factor for the presence of eccentric hypertrophy that is associated with higher mortality. Treatment of cardiovascular comorbidities should be intensified in those patients with abnormalities in LV geometry in order to prevent cardiovascular diseases such as heart failure.

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Figure 1. Abnormalities in left ventricular geometry in patients with RA.

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POS0554

MEDICAL COST AND RESOURCE USE IN PATIENTS STARTING TREATMENT FOR RHEUMATOID ARTHRITIS TREATED WITH AND WITHOUT CORTICOSTEROIDS IN JAPAN

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Background: The 2019 update of the European League Against Rheumatism (EULAR) treatment recommendations strongly recommends co-administration of corticosteroids (CSs) with conventional synthetic disease-modifying antirheumatic drugs (csDMARDs) in patients with RA as bridging therapy to improve the success rate of the first-line treatment and to avoid disease flare-ups¹; however, current treatment guidelines for RA in Japan do not clearly mention about their use. Poor disease management after the initial diagnosis can affect the overall use of health services and the economic burden on patients.

Objectives: To describe medical costs and resource use in patients with early RA treated with and without oral or injectable corticosteroids (CSs) as part of their initial treatment with disease-modifying antirheumatic drugs (DMARDs) in Japan.

Methods: We used a large Japanese administrative claims database constructed by the Japan Medical Data Center (JMDC)². Patients with the International Classification of Diseases 10th revision (ICD-10) codes for RA were enrolled at the first DMARDs prescription after no DMARDs prescription period for 6-months (index date) in the period from 1/1/2012 to 12/31/2017. Patients who were observable for 12 months after the index date as a follow-up period were included. Patients treated with CSs within the follow-up period were compared with those without them (CS and non-CS group). The primary endpoint was mean medical cost per patient in the 12-month follow-up period. The secondary endpoints were costs for drugs, treatments, and materials and the proportions of patients using the subcategories of each resource. Drugs were divided into medications for RA or for comorbidities including adverse events (AEs). Costs in JPY were converted into EUR (1 EUR = 125 JPY in 2020).

Results: Eligible patients of 1,670 and 1,487 were identified as the CS and non-CS group (median age: 51 years and 50 years). Total mean costs were significantly higher in the CS group (CS, 4,448 EUR, non-CS 3,208 EUR; $P < 0.05$). Drug, treatment, and material costs were significantly higher in the CS group than in the non-CS group (drug for RA and AEs, CS 2,367 EUR, non-CS 1,581 EUR, $P < 0.05$; drug for RA only, CS 2,265 EUR, non-CS 1,516 EUR, $P < 0.05$; treatment, CS 1,987 EUR, non-CS 1,562 EUR, $P < 0.05$; material, CS 94 EUR, non-CS 65 EUR; $P < 0.05$). The resource use in almost all drug subcategories were higher in the CS group (Table 1), as well as in all treatment and material subcategories.

Table 1. Number and proportion of patients who used drugs

Type of drug		Drug use, n (%)		
		CS (N = 1,670)	Non-CS (N = 1,487)	P-value
csDMARDs	Total	1,635 (97.9)	1,447 (97.3)	0.328
	Methotrexate	1,481 (88.7)	1,315 (88.4)	0.870
	Others	790 (47.3)	551 (37.1)	< 0.001
bDMARDs	Total	342 (20.5)	181 (12.2)	< 0.001
	TNFi	252 (15.1)	129 (8.7)	< 0.001
	IL6i	93 (5.6)	40 (2.7)	< 0.001
	T-cell	40 (2.4)	17 (1.1)	0.012
Analgesics	Total	1,512 (90.5)	1,274 (85.7)	< 0.001
	Acetaminophen	379 (22.7)	273 (18.4)	0.003
	Acetaminophen / Opioids	84 (5.0)	37 (2.5)	< 0.001
	NSAIDs	1,459 (87.4)	1,214 (81.6)	< 0.001
	Opioids	16 (1.0)	10 (0.7)	0.491
	Others	198 (11.9)	101 (6.8)	< 0.001
Antibiotics	Total	1,086 (65.0)	873 (58.7)	< 0.001
	Antibacterial drugs	1,022 (61.2)	800 (53.8)	< 0.001
	Antifungal drugs	133 (8.0)	86 (5.8)	0.019
	Antiviral drugs	172 (10.3)	129 (8.7)	0.136
	Antiparasitic drugs	5 (0.3)	8 (0.5)	0.443
Anti-osteoporotic drugs		341 (20.4)	95 (6.4)	< 0.001

bDMARDs=biological disease-modifying antirheumatic drugs; CSs=corticosteroids; csDMARDs=conventional synthetic disease-modifying antirheumatic drugs; IL6i=interleukin-6 inhibitor; NSAID=non-steroidal anti-inflammatory drug; T-cell=selective T-cell co-stimulation modulator; TNFi=tumor necrosis factor α inhibitor; P-values were calculated using Chi-square test

Conclusion: Patients with early RA treated with CSs in the first year after starting DMARDs tended to use more resources and have higher medical costs than patients not treated with CSs.

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POS0555

THE NATURAL COURSE OF RHEUMATOID ARTHRITIS-ASSOCIATED INTERSTITIAL LUNG DISEASE FOCUSING ON LUNG PHYSIOLOGY: A PROSPECTIVE OBSERVATIONAL COHORT STUDY (PART 1)

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Background: Interstitial lung disease (ILD) is a severe extra-articular manifestation of rheumatoid arthritis (RA). However, there are few prospective studies for the natural course of lung physiology in most patients with RA-ILD.

Objectives: To assess the natural course of lung physiology of RA-ILD and the relation between arthritis activity and pulmonary physiology in patients with RA-ILD.

Methods: The KOREAN Rheumatoid Arthritis ILd (KORAIL) cohort is the prospective observational cohort and aims to investigate the natural course of RA-ILD. Based on either 1987 or 2020 ACR criteria, patients diagnosed with RA and ILD based on CT scan were recruited from six tertiary medical hospitals in Korea since January 2015. RA disease activity was assessed using swollen and tender joint count by treating physician, inflammatory markers including CRP and ESR, and patient's global assessment annually. Pulmonary function tests (PFT), including FVC, FEV1, DLCO, and chest CT scan, were conducted annually.

Results: We analyzed 163 patients at baseline (V1), 141 at 1-year (V2), 122 at 2-year (V3), and 88 at 3-year follow-up (V4). The mean ($\pm$ SD) duration since RA diagnosis and since ILD diagnosis was 7.6 ± 8.0 and 2.7 ± 3.1 years, respectively. The female to male ratio was about 2:1, and 58.9% of patients ($n=96$) were 65 years old or older. Only two patients were negative for RF and anti-CCP; 98.7% of patients ($n=161/163$) were positive for RF ($n=143$, 87.7%) or anti-CCP antibody ($n=154$, 94.5%). At enrollment, one-hundred-nine patients (66.9%) had FVC $\geq 80\%$ of predicted. Twenty-five patients (15.3%) showed FEV1/FVC ≥ 0.7 , of which seventeen patients, only ten percent of a total cohort (10.4%), had FVC $\geq 80\%$ of predicted, which corresponds to the obstructive pattern. Proportion of patients showed a ≥ 10 -point decline from the enrollment in FVC of the predicted value were around 10% at every year (Table 1). The proportion of patients with a relative decline of $\geq 10\%$ from the enrollment in FVC predicted was increased every year because of cumulation. The proportion of patients with a relative decline of $\geq 10\%$ from the previous visit in FVC predicted was also around 10-15% every year. Proportions of patients with 55% or more DLco % pred. has been decreased annually; 78.5% ($n=128/158$) at V1, 72.9% ($n=105/139$) at V2, 68.7% ($n=90/117$) at V3, and 56.6% ($n=56/85$) at V4. Patients with a relative decline of $\geq 10\%$ from the enrollment in DLco predicted was 38 (27.5 %) at V2 and 37 (31.9%) at V3. Patients with a relative decline of $\geq 10\%$ from the previous visit in DLco predicted was 29 (25.2%) at V3. Of note, thirty patients (21.7%) showed a relative 10% or more increase from enrollment in DLco predicted at V2, and so did 30 patients (25.9%) at V3.