osteoarthritis. High risk profiles comprised established ACVD (coronary artery disease, ischemic cerebrovascular disease or/and peripheral artery disease), diabetes (type 2 or type 1 aged >40 years), high LDL cholesterol concentration (≥ 190 mg/dl), chronic kidney disease (CKD) (Chronic Kidney Disease Epidemiology Collaboration equation value < 60 ml/min/1.73 m²), and a Systemic Coronary Risk Evaluation (SCORE) of $\geq 5\%$ and Framingham score of $\geq 20\%$ both before and after application of the recently reported European League Against Rheumatism (EULAR) multiplier (SCORE and Framingham score $\times 1.5$ in the presence of RA) (1). The prevalence of high ACVD risk profiles and statin use by indication were compared between RA and non-RA patients in age, sex and race adjusted logistic regression models.

Results: RA patients were older (mean (SD) age=62.1 (15.8) versus 54.0 (15.4) years, $p<0.0001$) and less frequently women (66.3% versus 79.7%, $p=0.009$) than their non-RA counterparts; RA and fibromyalgia were the most frequent diseases in white and North-African patients, respectively. The prevalence of ACVD, diabetes, high LDL cholesterol, CKD, high SCORE and Framingham score did not differ between RA and non-RA patients. Only upon applying the EULAR multiplier (1) was RA associated with a high SCORE (OR (95% CI)=2.18 (1.01–4.72)) and Framingham score (OR (95% CI)=3.46 (1.63–7.36)). The prevalence of any high risk ACVD profile before (OR (95% CI)=1.02 (0.53–1.98)) and after application of the EULAR multiplier (OR (95% CI)=1.85 (0.93–3.69)) were similar in RA and non-RA patients. Statin use by indication was consistently similar in RA compared to non-RA patients. Overall, 38.3% of RA patients and 40.0% of non-RA patients that had any high risk ACVD profile used a statin (OR (95% CI)=0.79 (0.38–1.66)).

Conclusions: In this single center study, having one or more high ACVD risk profiles was equally prevalent in non-RA and RA patients. Circa 60% of patients with RMD and any high risk ACVD profile did not use statins and this finding did not differ in non-RA compared to RA patients. There is a vast and urgent need for improved ACVD risk management among patients with RMD irrespective of RA status.

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SAT0151 CARDIORESPIRATORY FITNESS IN PATIENTS WITH RHEUMATOID ARTHRITIS

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Background: Mortality rates are higher in RA patients compared to the general population, mostly due to cardiovascular disease (CVD). Cardiorespiratory fitness (CRF) is inversely associated with CVD, but little is known about CRF levels in RA patients.

Objectives: To study the association between CRF in RA patients (measured as VO₂peak), and CVD risk factors and RA-specific clinical variables.

Methods: 93 patients were recruited from a hospital rheumatology outpatient clinic. VO₂peak was measured by ergospirometry during a treadmill test. Tender and swollen joint count, height, weight, waist circumference, resting heart rate, blood pressure and hsCRP were measured. RA characteristics and information on comorbidity were recorded from an interview and from medical records. Based on a previously published index weighting frequency, intensity and duration of self-reported physical activity (PA) (1), patients were categorized into four different PA categories (table 1). VO₂peak was analyzed using multivariate linear regression, adjusting for age and gender. All participants signed an informed consent and the regional ethics committee approved the study.

Results: Table 1 Patient characteristics (n=93)

Gender, female, n(%)	68 (73)	Seropositivity (anti-CCP and/or RF pos.), n(%)	75 (81)
Age (yrs), median (IQR)	60 (52–66)	Disease duration (yrs), median (IQR)	10 (5–19)
BMI (kg/m ²), mean (SD)	26.7 (3.9)	VAS Global (0–100), median (IQR)	24 (10–37)
Smoking, present or previous, n(%)	58 (62)	DAS28CRP (%Remission/LowDA/IntermedDA/HighDA)	42/25/30/3
PA categories:		mHAQ, median (IQR)	0.13 (0–0.44)
Inactive, n(%)	25 (27)	Medications:	
Mod. active, n(%)	11 (12)	Biologics, n(%)	54 (58)
Active, n(%)	39 (42)	DMARDs, n(%)	74 (80)
Very active, n(%)	18 (19)	Corticosteroids, present or last year n(%)	39 (42)

In the multivariate regression model ($R^2=0.79$), VO₂peak was positively associated with the PA categories “Active” ($p=0.018$) and “Very active” ($p=0.008$), and negatively associated with BMI ($p<0.001$) and resting heart rate ($p=0.017$). VO₂peak was not associated with disease duration ($p=0.47$), mHAQ ($p=0.71$), DAS28 ($p=0.43$), VAS Global ($p=0.24$), hsCRP ($p=0.14$), seropositivity ($p=0.44$), use of biologics ($p=0.91$), other DMARDs ($p=0.66$) or corticosteroids ($p=0.60$). There was a trend towards a negative association with smoking ($p=0.096$).

Conclusions: We observed a strong association between common CVD risk factors (inactivity, high BMI, high resting heart rate) and lower CRF in RA patients, similar to published findings from the general population. Patients in the “Active” and “Very active” PA categories showed significantly higher VO₂peak, whereas RA-specific variables such as seropositivity, disease activity, disease duration and medications had no impact on VO₂peak. We cannot exclude a selection bias because more fit patients could be more likely to participate in the study.

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SAT0152 SYSTEMIC AND RENAL AA AMYLOIDOSIS IN RHEUMATOID ARTHRITIS – A COMPARATIVE POSTMORTEM CLINICOPATHOLOGIC STUDY OF 161 PATIENTS

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Objectives: The aim of our study was to determine the prevalence and severity of systemic AA amyloidosis (sAAa), to specify amyloid A deposits in different tissue structures of the kidneys, to outline the development of renal AA amyloidosis (rAAa), and to estimate the role of sAAa and rAAa in mortality.

Methods: At the National Institute of Rheumatology 9475 patients died between 1969 and 1992; among them 161 with RA (females 116, average age: 64.95 years, range 87–16, onset of RA: 50.19, average disease duration: 14.79 years; males 45, average age: 66.29 years, range 88–19, onset of RA: 52.57, average disease duration: 13.46 years at death); who were autopsied.

RA was confirmed clinically according to the criteria of the ACF.

sAAa was specified histologically, based on evaluation of 5 organs (heart, lung, liver, kidney and pancreas) in each of 161 patients. Amyloid A deposition was diagnosed histologically according to Romhányi by a modified (more sensitive) Congo red staining. Amyloid A deposits were identified in serial sections by immunohistochemical and histochemical methods. The prevalence (existence) and severity (extent) of amyloid A deposition were evaluated microscopically with an Olympus BX51 polarizing microscope.

Results: sAAa complicated RA in 34 (21.12 %) of 161 patients; in 127 (78.88 %) of 161 patients amyloid A deposits were not found.

Amyloid A deposits were found in 29 (87.88 %) kidneys of 33 patients with sAAa; kidneys were negative for amyloid in 4 (12.12 %) of 33 cases (in 1 of 34 patients with sAAa tissue blocks of kidneys were not available).

sAAa was lethal in 17 (50.0 % of 34) patients due to massive amyloid A deposition in the kidneys, leading to renal insufficiency and uremia. Cardiac amyloid A deposition led to death in 3 (8.82 % of 34) patients with sAAa (and contributed to the lethal outcome in further 5). Fourteen (41.18 % of 34) patients with sAAa died of other causes such as peritonitis, lethal septic infection, etc.

sAAa was clinically diagnosed in 9 (26.47 %) and missed in 25 (73.52 %) of 34 patients, and only cases with massive renal amyloid A deposits were recognized. Cardiac AAa or its pathogenic role in mortality was not diagnosed.

Conclusions: sAAa is one of the main and the most insidious complications of RA affecting the kidneys with high prevalence and severity. sAAa is related to the cardiovascular system, and rAAa is associated with it. sAAa and rAAa may be developed in both sexes, and at any time in the course of the disease.

Systemic and renal amyloid A deposition is a progressive and cumulative process, involving in its early stage only a few structures in various organs, and increasingly more in the later stages of the disease.

In sAAa the renal amyloid A deposition starts after a latent stage. This latency may be caused by a not specified local protective mechanism, e.g. great excretion capacity of the kidneys.

Amyloid A deposition starts in the most frequently involved structures of the kidneys with more massive deposits. The chronology of amyloid A deposition allows

an indirect assessment of the stage of renal amyloidosis, which may have a prognostic value in everyday surgical pathology. Half of the patients with **sAA** died of uremia caused by massive **rAA** and only 9 of these were clinically recognized. Renal amyloid A deposition should be considered a very serious, life-threatening complication of **RA**.

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SAT0153

ANALYSIS OF CLINICAL-ANALYTICAL CHARACTERISTICS IN PATIENTS WITH RHEUMATOID ARTHRITIS (RA) AND INTERSTITIAL LUNG DISEASE (ILD): CASE-CONTROL STUDY

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Objectives: To study the differences in severity marker and disease activity in patients with RA and ILD and patients with RA without DILD, and to identify factors associated with ILD in RA patients.

Methods: Design: Observational case-control study. **Patients:** consecutive RA-patients (ACR/EULAR 2010 criteria) with ILD (American Thoracic Society) selected from a prospective cohort from Regional Hospital and Virgen Victoria Hospital of Málaga were included. Controls: RA-patients without ILD. Sex-age matched controls were collected from a prospective cohort of Regional Hospital. **Protocol:** RA Patients are reviewed every six months in general clinic and patients with biological therapy every three months. All patients are reviewed according to a protocol with systematic data collection. The data of patients with RA and ILD are also collected in a database according to a specific protocol for these patients. The day that was reviewed the last time in consultation will be marked as inclusion date. Data will be collected on the date of inclusion and their clinical records. **Outcomes:** Difference in severity marker in both groups on the date of inclusion (RF, ACPA, erosive arthritis); in disease Activity Score (DAS28-ESR) and Health Assessment Questionnaire (HAQ); description of modifying antirheumatic drugs (DMARDs); **Variables:** Demographic, clinical-analytical variables: number of tender joints (TJ), number of swollen joints (SJ), CRP, ESR, general evaluation, DAS28-ESR, HAQ and adverse effects (description, severity and number). **Statistical analysis:** Descriptive and paired T-test or Chi-square test followed by binary logistic regression (RLB) (Vd:ILD in patients with RA).

VARIABLE	RA-ILD (n=29)	RA (n=24)	P - value
Age (years), mean (SD)	67.7 (8.0)	66.9 (7.2)	0.692
Sex (female), n (%)	16 (55.2)	13 (54.2)	0.942
Sex (male), n (%)	13 (44.8)	11 (45.8)	
Smoke			0.003
Non-smoker, n (%)	13 (44.8)	16 (66.7)	
Ex-smoker, n (%)	11 (37.9)	0 (0.0)	
Smoker, n (%)	5 (17.2)	8 (33.3)	
Disease duration RA, median (p75-p25)	130.9 (91.4-208.2)	99.9 (73.4-121.8)	0.002
Socio Economic Status			0.500
No income, n (%)	9 (31.0)	8 (33.3)	
<1500 €/month, n (%)	17 (58.6)	11 (45.8)	
≥1500 €/month, n (%)	3 (10.3)	5 (20.8)	
Educational level			0.345
None, n (%)	12 (44.4)	6 (25.0)	
Primary and secondary school, n (%)	12 (44.4)	14 (58.3)	
University, n (%)	3 (11.1)	4 (16.7)	
Rheumatoid factor, n (%)	27 (93.1)	20 (83.3)	0.264
Anti-cyclic citrullinated peptide, n (%)	27 (93.1)	20 (83.3)	0.264
Anti-cyclic citrullinated peptide elevated (≥340), n (%)	22 (75.9)	10 (41.7)	0.008
Erosions, n (%)	24 (82.8)	12 (50.0)	0.011

Results: Fifty-three patients were included, 29 RA with ILD and 24 RA controls. The differences between clinical and epidemiological characteristics to cases and controls are shown in table 1. RA patients with ILD showed more months with RA duration (p=0.002), more number of exsmokers (p=0.003), erosive arthritis (p=0.011) and ACPA positive (P=0.008). No significant differences in the mean of

DAS28 in cases and controls were observed (2.61 vs 2.68; p=0.789), but RA patients with ILD presented worse in physical function parameters by HAQ (1.12 VS 0.63; P=0.032). All patients were treated with disease modifying antirheumatic drugs (DMARDs). RA patients with ILD had: 5 (17.2%) monotherapy with bDMARDs, 17 (58.62) monotherapy with sDMARD and 7 (24.1) sDMARDs with a bDMARDs. In multivariate analysis, the independent variables that were associated with ILD in RA patients were: ACPA elevated (OR [IC95%] =5.0 [1.2-9.9]; p=0.023) and RA duration (months) (OR [IC95%]=1.1 [1.0-1.2]; p=0.037). This model would explain 28% of the variability of the ILD in RA (R²=0.28).

Conclusions: The evolution time of arthritis and the presence of ACPA to high titres (>340) were the predictors of ILD in patients with RA in our study. More prospective studies with a greater number of patients are necessary to identify the possible association.

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SAT0154

ASSESSMENT OF BONE TURNOVER MARKERS IN PRE- AND POSTMENOPAUSAL WOMEN WITH RHEUMATOID ARTHRITIS

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Background: To compare bone metabolism in pre- and postmenopausal women with RA

Objectives: GCs and inflammation lead to BMD loss through increase the expression of RANKL and decrease the expression of osteoprotegerin in stromal and osteoblastic cells. Determination of indicators relevant for clinical practice for identification a high-risk BMD loss group of RA patients is needed.

Methods: The bone turnover markers were analyzed in 58 women with RA: 36 premenopausal (PreM) and 22 postmenopausal (PM). The two groups were significantly different in age (35.9±8.7 PreM vs 57.1±4.1 PM) and BMI (23.8±4.3 PreM vs 28.6±5.0 PM). By disease duration (8.9±5.7 years vs 10.0±6.1 years), disease activity by DAS28, x-ray changes, GC, MTX and biologic therapy both group were comparable. BMD was measured in 3 part of the skeleton: hip, lumbar spine, distal part of forearm. Serum levels of 25 (OH) vitamin D (Vit D), parathormone (PTH), osteoprotegerin (OPG), RANKL were analyzed.

Results: Low level of Vit D (25(OH)D<30 ng/ml) was observed in 46.6% of patient and was preferable in PreM women. Vit D deficiency was associated with age (R=-0.31, p<0.05) and positive anti-CCP (R=-0.46, p<0.05). The mean level of PTH was normal in 74.1%. Serum OPG level was significantly higher in more than 50% of patients. It was associated with presence of erosion (R=0.97, p<0.05), decreased cortical index (R=-0.28, p<0.05) in PreM patient and DAS28 (R=-0.44, p<0.05) in all patients. High level of RANKL was preferable in PM women (47.6%), decreased level more often was observed in PreM patient (38.9%). In PM patients increased level of RANKL was correlated with BMI, duration of menopause and DAS28, in PreM – only with DAS28. In PreM women the changes in serum levels of PTH and vitamin D was negatively correlated with levels of RANKL and C-TP, low level of vitamin D had negative correlation with OPG (R -0.47). According to lineal regression analysis positive correlation between disease duration, Sharp van der Heijde erosion score and PTH (r=0.31; p=0.01, R²=0.11) was observed in all patients, more often in PreM women. Low spine BMD in PreM associated with high PTH (R=0.82, p<0.05), in PM – with high PTH, OPG/RANKL and low level of RANKL. Low hip neck BMD correlated with decreased level of vit D in PM patients. Low levels of vit D, C-TP and high levels of OPG and OPG/RANKL index was significantly associated with forearm low BMD in all patients. In PreM women strong association between low vit D (R=-0.60, p<0.05), high OPG (R=0.89, p<0.05) and BMD in medium part of forearm was observed.

Conclusions: In premenopausal women vitamin D deficiency had high predictive value for decrease BMD in the medium part of forearm, high level of PTH – for decrease BMD in the spine. In PreM RA patients low Vit D, low cortical index and high PTH can be considered as an indication for BMD assessment. PM women with high BMI, longstanding postmenopausal period and high disease activity may be candidate for bone markers assessment.

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