correlation parameters LM and absolute 10 years risk of osteoporotic fractures ($r=-0.302$, $p<0.05$) on FRAX.

Conclusion: 63.6% of men suffering from RA, there was a decrease in BMD, the corresponding OP/osteopenia with a primary reduction of BMD at the femoral neck. Decrease BMD in patients with RA was significantly associated with a high degree of disease activity ($r=-0.4$, $p<0.05$). Taking GCS had no significant effect on BMD at the femoral neck. Analysis of body composition in 55% of patients with RA showed a reduction in the level of LM limbs sarcopenia. Obtained correlation lower BMD and LM limbs ($p<0.05$; $r=0.28$).

Thus, in patients with RA male along with OP/osteopenia showed a significant decrease in LM that given the biomechanics of movement can be an additional risk factor for falls and fractures.

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FRI0053

ACCELERATED ATHEROSCLEROSIS IN PREMENOPAUSAL WOMEN WITH RHEUMATOID ARTHRITIS (15 YEARS PROSPECTIVE STUDY)

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Background: Rheumatoid arthritis (RA) is chronic inflammatory disease, associated with increased mortality and morbidity due to higher cardiovascular risk in these patients.

Objectives: Traditional risk factors are not the only answer for accelerated atherosclerosis. In long term prospective study, we investigated the relationship between asymptomatic atherosclerosis and traditional risk factors as well inflammatory markers in patients with RA and matched healthy controls.

Methods: In 60 RA premenopausal women and 34 matched controls values of laboratory test results, concentrations of inflammatory mediators, matrix metalloproteinases (MMP) and markers of inflammation were measured. Using B-mode ultrasonography carotid intima-media thickness (cIMT) and plaques occurrence (markers of asymptomatic atherosclerosis) at baseline and after 15 years of observation were defined in both groups. The differences in concentrations of inflammatory mediators, MMPs and markers of inflammation were compared. The relationship of inflammatory mediators and markers, MMPs and markers of asymptomatic atherosclerosis was examined using regression models.

Results: After the follow up statistically significant higher values of inflammatory markers like selective adhesion molecules ICAM & VCAM, interleukin 6 (IL-6), tumour necrosis factor alpha (TN alpha) and MMP-3 in patient's group was found. Among traditional risk factors only sedimentation rate and CRP levels were statistically higher in patient's group. More plaques were found in patients' group (12.9% vs. 42.4%; $p=0.005$), patients had also higher values of cIMT ($p<0.0001$). Using multiple linear regression analysis only VCAM was found as independent prognostic factor for plaques occurrence ($p=0.016$), but not for cIMT ($p=0.314$) in RA patients after the follow up.

Conclusion: Asymptomatic atherosclerosis is accelerated in premenopausal women with RA patients. The results of our study showed the association between the inflammation and accelerated atherosclerosis, VCAM was found as independent risk factor for plaques occurrence in these patients.

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FRI0054

CHARACTERISTICS OF PATIENTS WITH ELDERLY-ONSET RHEUMATOID ARTHRITIS AND INVESTIGATION OF DRUG THERAPY

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Background: It is expected that the increase in average life expectancy in recent years would also be observed even in patients with rheumatoid arthritis (RA)

Objectives: We compared data for RA patients obtained between 1991 and 2018 to clarify the current clinical picture of RA in elderly patients.

Methods: We evaluated 429 and 368 RA cases seen at our department in 1991 and 2018, respectively. The patient ages and sex ratios in the two groups were first compared, and then the clinical features of 260 patients with younger-onset RA (YORA; onset age <65 years) and 108 patients with elderly-onset RA (EORA; onset age >65 years) in the 2018 group were evaluated. All patients satisfied the 1987 and 2010 Rheumatoid arthritis classification criteria for RA, and their data were obtained from the medical records. Patient data at the onset of RA were used. The study protocol was approved by the Institutional Review Board of Niigata University. All statistical analyses were performed with SPSS ver. 13 for Windows, and differences at $p<0.05$ were considered to be statistically significant.

Results: The peak age at RA onset was 50s-60s in 1991 and 60s-70s in 2018. In 1991, the male-female ratios in the <65-yr and >65-yr age groups were 0.14 and 0.19, respectively, whereas the corresponding ratios in 2018 were 0.25 and 0.38, respectively. Although the proportion of elderly patients increased, homogeneity testing of the odds ratio revealed no significant difference. Among the 368 RA patients in the 2018 group, initial involvement of large joints was more frequent in those with EORA, whereas initial involvement of small joints was more frequent in those with YORA ($p<0.05$). Statistical analysis demonstrated no significant inter-group differences in hemoglobin, WBC, BUN, uric acid, CRP, ESR or serum creatinine, but the estimated glomerular filtration rate was significantly higher in the YORA group ($P=0.00$). The frequencies of hematuria and proteinuria (>1.0 g/Cr) showed no inter-group differences. The frequency of RF positivity also did not differ between the groups, but the RF titer was higher in the YORA group ($p<0.01$). ACPA showed no inter-group difference in terms of either the frequency of positivity or titer. Among other features after diagnosis, AA amyloidosis was observed in only 7 (2.7%) of the YORA patients. RA preceded PMR in 7 patients in each group, and the frequency of PMR was significantly ($P<0.01$) higher in patients aged >60 years. For therapy, MTX was used in about 70% of YORA patients, its use being more frequent than EORA patients ($p<0.01$), although the dose employed did not differ significantly between the two. About half of all patients received steroid, and neither the frequency nor the dose differed significantly between the YORA and EORA groups. Biological agents were used in 61% of YORA patients and 29% of EORA patients, the difference being significant ($p<0.01$). Abatacept was used significantly ($p<0.05$) more often in the EORA group because of the low frequency of severe infections, but the frequency of use of other biological agents and Jak inhibitors did not differ significantly between the groups.

Conclusion: The characteristics of EORA patients differ from those of YORA patients. Diagnosis requires attention to PMR. In YORA, attention to amyloid is also required in view of the fact that treatment was insufficient in the past. Pharmacotherapy should be based on the characteristics of aging in elderly patients with RA. The diagnosis and treatment of RA in elderly patients is an issue of future concern.

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FRI0055

AN EQUATION FOR ESTIMATED CARDIORESPIRATORY FITNESS IN RHEUMATOID ARTHRITIS PATIENTS IS NEEDED

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Background: RA patients are deconditioned and on average have decreased cardiorespiratory fitness (CRF, peak oxygen uptake) compared to the general population (1). This may contribute to an increased risk of cardiovascular disease (CVD). Because CRF is associated with cardiovascular health, it is important to assess. For the general population, various equations exist for estimation of CRF (eCRF) without the need of a resource-intensive cardiopulmonary exercise test.

Objectives: Compare eCRF of people without RA to eCRF of RA patients, using recognized equations for eCRF (2,3) based on gender, age, resting heart rate, waist circumference and self-reported physical activity.

Methods: Among participants with self-reported RA in the second and third surveys of the Norwegian population-based Nord-Trøndelag Health Study (HUNT2 and 3)(4), RA patients were identified from hospital case files using standardized diagnostic criteria (5). The mean eCRF of participants with and without RA were calculated and the 95% confidence intervals (CI) compared.

HUNT2	Men (no RA)	Men (RA)	Women (no RA)	Women (RA)
	Mean eCRF (CI), n	Mean eCRF (CI), n	Mean eCRF (CI), n	Mean eCRF (CI), n
30-39 years	50.3(50.2-50.5), 5,134	49.5(45.6-53.4), 8	40.3(40.2-40.4), 5,623	38.7(37.2-40.1), 25
40-49 years	46.2(46.1-46.3), 6,104	46.7(44.8-48.6), 22	36.6(36.5-36.7), 6,496	36.2(35.2-37.2), 72
50-59 years	42.2(42.0-42.3), 4,910	40.9(39.6-42.3), 50	32.9(32.8-33.1), 4,994	31.5(30.7-32.4), 75
60-69 years	38.3(38.2-38.5), 3,600	39.2(37.7-40.6), 40	29.0(28.9-29.1), 3,441	28.6(27.7-29.5), 71
70-79 years	34.7(34.5-34.9), 2,678	34.3(31.9-36.6), 20	25.3(25.2-25.5), 2,608	25.3(23.9-26.7), 32
80-89 years	30.4(30.0-30.8), 677	n=0	22.1(21.9-22.4), 871	24.0(18.1-29.9), 4
HUNT3	Men (no RA)	Men (RA)	Women (no RA)	Women (RA)
	Mean eCRF (CI), n	Mean eCRF (CI), n	Mean eCRF (CI), n	Mean eCRF (CI), n
30-39 years	46.6(46.4-46.9), 2,069	47.3(24.5-119.0), 2	37.1(36.9-37.2), 3,189	34.7(30.8-38.5), 9
40-49 years	43.3(43.1-43.5), 3,406	46.5(10.2-82.9), 2	34.8(34.7-34.9), 4,668	34.9(32.9-36.8), 21
50-59 years	39.5(39.4-39.7), 4,153	39.5(37.4-41.5), 19	31.5(31.4-31.7), 4,994	30.2(29.1-31.4), 56
60-69 years	36.2(36.0-36.3), 3,764	33.1(31.3-34.8), 41	28.2(28.1-28.4), 4,222	27.5(26.5-28.6), 58
70-79 years	33.0(32.8-33.2), 2,149	34.3(32.4-36.1), 35	24.9(24.8-25.1), 2,284	24.4(23.2-25.5), 41
80-89 years	29.7(29.4-30.1), 708	28.3(24.5-32.0), 8	22.6(22.3-22.8), 812	22.8(21.2-24.3), 14

Table 1. Mean eCRF (mL/(kg x min)) and 95% CIs of RA patients and participants without RA attending HUNT2 and 3. Age categories with n<8 RA patients in grey.

Conclusion: The eCRF CIs of RA patients and participants without RA were overlapping in all age categories except for men aged 60-69 years in HUNT 3 (Table1). This is contradictory to previous findings where RA patients were deconditioned compared to healthy controls (1). A probable explanation is that equations for eCRF were developed from healthy populations, and therefore overestimate eCRF in RA patients. For better CVD risk management including CRF as an important risk factor, an equation for eCRF developed specifically for RA patients is needed.

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FRI0056

NESTED CASE-CONTROL STUDY : ASSOCIATED FACTORS WITH INSULIN RESISTANCE IN A RHEUMATOID ARTHRITIS INCEPTION COHORT

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Objectives: To assess insulin resistance (IR) in patients with rheumatoid arthritis (RA) and compare it with healthy controls and to analyze the association between the accumulated inflammatory burden in patients with RA and IR.

Methods: Design: Nested case-control study. Population: consecutive RA-patients (ACR/EULAR 2010 criteria), >16 years, selected from a prospective inception cohort (diagnosis of RA between 2007 and 2011). Patients with Diabetes Mellitus (according to ADA 2010 criteria) were excluded. Controls: sex- age and BMI -matched controls were collected from a health center in our hospital area. Protocol: Cases and controls were evaluated by a rheumatologist. Clinical data of disease activity (RA patients), analytical values and oral glucose tolerance test (OGTT) were determined. Main outcome: IR measured by the homeostasis model for insulin resistance (HOMA-IR) (IR> 2.29 $\mu\text{U}^*\text{mmol/ml}$). Secondary outcome: IR measured by quantitative insulin sensitivity check index (QUICKI) (<0.337 $\mu\text{U}^*\text{mmol/ml}$) and by the homeostatic model assessment of β -cell function (HOMA β). Variables: Demographic, clinical-analytical variables, Disease Activity Score of 28 joints (DAS28-ESR), Health Assessment Questionnaire (HAQ), BMI (according to OMS classification) and glucose and insulin before and after OGTT values. Statistical analysis: Descriptive and paired T-test or Chi-square test followed by Multivariate Linear Regression in RA patients (Dependent variable: HOMA-IR).

Results: Two hundred subjects were studied, 31 of them were excluded after OGTT. Finally 169 subjects were included; 89 RA and 80 controls. The mean age of patients with RA was 56.6($\pm$ 10.9) years. Most of them were women (75.3%), with seropositive (FR 82.0% y ACPA 75.3%) and erosive (61.1%) RA. The average duration of the disease was 98 months (8.1 years). The delay in the diagnosis of RA was 10.9 months (5.4 - 25.6) with a mean DAS28 index since the beginning of the disease of 3.11 (0.8). Differences between clinical characteristics and in relation to IR between cases and controls are shown in Table 1. No significant differences in the proportion of subject with IR in cases and controls were observed and 28.1% of patients with RA had IR. Of the 25 patients with IR, the majority, 68%, presented a DAS28 score> 3.2 (moderate-high activity index). In multivariate analysis, the independent variables associated with IR in patients with RA were: Obesity [OR=6.01; β =1.795 (p=0.002), disease activity (OR=2.77; β =1.021 [p=0.009]) IL-1 β (OR=1.59; β =0.464 (p=0.024)). This model would explain 37.5% of the variability of the IR (R²=0.375).

Conclusion: We did not find an increased IR in patients with RA compared with healthy controls, which may be due to adequate treatment and good control of inflammatory activity in the most of patients with RA. Obesity, inflammatory activity (measured by mean DAS28 index) and IL-1 β were the predictors of IR in patients with RA in our study.

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