Conclusion: Rheumatoid arthritis patients are in increased risk of CV disease. PWV is considered as an independent risk factor of CVD. We proved increased arterial stiffness and vascular ageing in comparison to healthy controls. We did not find correlation between increased arterial stiffness and disease activity. All CVD risk factor intervention is necessary to improve the prognosis of patients. Further investigation is needed to establish the role of increased PWV in RA patients.

References:

- [1] Reference Values for Arterial Stiffness' Collaboration. Determinants of pulse wave velocity in healthy people and in the presence of cardiovascular risk factors: 'establishing normal and reference values'. *Eur Heart J.* 2010;31(19):2338–2350.
- [2] Pasquale Ambrosino, Marco Tasso, Roberta Lupoli, Alessandro Di Minno, Damiano Baldassarre, Elena Tremoli & Matteo Nicola Dario Di Minno. Non-invasive assessment of arterial stiffness in patients with rheumatoid arthritis: A systematic review and meta-analysis of literature studies, *Annals of Medicine*, 2015; 47:6, 457-467.

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AB0265

REDUCTION OF APPENDICULAR SKELETAL MASS INDEX IS A PREDICTOR OF FRACTURE IN PATIENTS WITH RHEUMATOID ARTHRITIS BASED ON THE THREE-YEAR FOLLOW-UP DATA OF THE CHIKARA STUDY

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Background: Patients with rheumatoid arthritis (RA) have lower muscle mass¹ and a higher risk of fragility fracture² compared with healthy individuals. The predictors for fractures among baseline data and the chronological changes of disease activity, body composition, and muscle mass are unknown.

Objectives: The predictors for fractures were investigated over a 3-year period in a longitudinal study.

Methods: The 3-year follow-up data from a prospective observational study (CHIKARA study: Correlation research of sarcopenia, skeletal muscle and disease Activity in Rheumatoid Arthritis) were used. The patients' fractures were counted, and correlations between fractures and disease activity, body composition, and sarcopenia were investigated. Muscle mass, body fat mass, total body water, bone mass, and basal metabolic rate were measured using a body composition analyzer. The fracture-free survival rate was calculated. The relationships between fractures and each parameter at baseline and the changes over the 3-year period (Δ) were investigated by univariate and multivariate analyses.

Results: A total of 100 patients (78 female, average age 68 years) were enrolled in this study; 12 patients (10 female and 2 male) had fractures during the 3-year follow-up, and the fracture-free survival rate was 86.9%. The Δ modified Health Assessment Questionnaire (mHAQ), Δ weight, Δ muscle mass, Δ estimated bone mass, Δ basal metabolic rate, and Δ appendicular skeletal muscle index (ASMI) were predictors for fractures. On the other hand, body composition, disease activity, and sarcopenia at baseline were not correlated with fractures (Table 1). The Δ ASMI was an independent predictor for fractures on multivariate analysis (odds ratio:0.015, $P=0.026$). The estimated cut-off value of the Δ ASMI was 0.14 kg/m² on receiver operating characteristic curve analysis (Figure). When the Δ ASMI decrease was greater than or equal to 0.14 kg/m² for three years, the odds ratio of fractures was significantly increased 9.8-fold, compared to a Δ ASMI decrease less than 0.14 kg/m² ($P=0.001$).

Table 1. Predictors for fractures in patients with RA

	Univariate	
	R value	P value
Baseline		
Age, year	0.172	0.087
DAS28-ESR	-0.083	0.411
mHAQ	0.077	0.447
Weight, kg	0.021	0.837
Muscle mass, kg	-0.0035	0.728
Estimated bone mass, kg	-0.020	0.845
Sarcopenia	-0.093	0.356
Change of 3-year period		
Δ DAS28-ESR	0.187	0.088
Δ mHAQ	0.224	0.040
Δ Weight, kg	-0.224	0.045
Δ Muscle mass, kg	-0.253	0.023
Δ Estimated bone mass, kg	-0.236	0.034
Δ Basal metabolic rate, kcal/day	-0.248	0.025
Δ Appendicular skeletal muscle index, kg/m ²	-0.352	0.001

Conclusion: The fracture-free survival rate was 86.9% in this 3-year longitudinal study. It was difficult to predict future fractures from the baseline data. Reduction of the ASMI was an independent predictor for fractures. Alleviating muscle mass loss may prevent fractures.

References:

- [1] Inui K., Koike T., Tada M., et al. Sarcopenia is apparent in patients with rheumatoid arthritis, especially those with biologics -TOMORROW study- *EULAR* 2015 abstract (AB0359).
- [2] van Staa TP, Geusens P, Bijlsma JW, et al. Clinical assessment of the long-term risk of fracture in patients with rheumatoid arthritis. *Arthritis Rheum.* 2006; 54: 3104–12.

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AB0266

ANALYSIS OF STRESS AND FATIGUE IN PATIENTS WITH RHEUMATOID ARTHRITIS USING A DIGITIZING DEVICE

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