Conclusions: RA patients have high prevalence of falls and fear of falling. Income was an independent fall risk factor. BBS seems to be higher among fallers and TUG can be considered a fall risk predictor. BBS, TUG and SST5 are related to CDAI and HAQ. CDAI does not seem to be a good instrument to predict falls due to its variability over time. In clinical practice, HAQ can be a valuable tool to recognise patients with an increased risk of falls.

REFERENCES:

- [1] Stanmore EK, Oldham J, Skelton DA, et al. Risk factors for falls in adults with rheumatoid arthritis: a prospective study. *Arthritis Care Res* 2013 Aug;65(8):1251–8.
- [2] Brenton-Rule A, Dalbeth N, Menz HB, et al. The incidence and risk factors for falls in adults with rheumatoid arthritis: a systematic review. *Semin Arthritis Rheum* 2014;44:389–98.
- [3] Podsiadlo D, Richardson S. The timed "Up & Go": a test of basic functional mobility for frail elderly persons. *J Am Geriatr Soc* 1991; 39:142–8.16.
- [4] Berg KO, Maki BE, Williams JL, et al. Clinical and laboratory measures of postural balance in an elderly population. *Arch Phys Med Rehabil* 1992;73:1073–1080.
- [5] Bohannon RW. Test-retest reliability of the five-repetition sit-to-stand test: a systematic review of the literature involving adults. *J Strength Cond Res* 2011; 25:3205–7.

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THU0168

RELATIONSHIPS BETWEEN BODY FAT COMPOSITION ASSESSED WITH BIOELECTRICAL IMPEDANCE ANALYSIS, SERUM ADIPOKINES AND DISEASE ACTIVITY IN PATIENTS WITH RHEUMATOID ARTHRITIS

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Background: High-grade inflammation in patients affected with Rheumatoid Arthritis (RA) leads to an imbalanced body composition characterised by increased fat mass and decreased lean mass, with stable or increased body weight, resulting in little or no change in body mass index (BMI).¹ This condition, known as rheumatoid cachexia, is proven to be reversible once inflammatory process has been shut down. BMI and waist-to-hip ratio (WHR) are used as indirect measurements of visceral fat even if not capable of discriminating it from subcutaneous fat tissue. An alternative method proposed for assessment of fat composition, indicating nutritional status, is bioelectrical impedance analysis (BIA).

Objectives: To analyse body fat composition of patients with RA assessed using either BIA and anthropometric measures, investigating relationships between the related indices, serum adipokines and disease activity.

Methods: The body composition of 87 consecutive patients (72 female, 82.76%) affected with RA according to 2010 ACR/EULAR classification criteria, mean age of 52.42±13.29, mean disease duration of 10.71±8.58 years, treated with DMARDs and/or biologics, was assessed during their visit to our outpatient department. Data including demographic characteristics clinical manifestations, disease activity indices (DAS28-ESR, DAS28-CRP, CDAI, SDAI), Health Assessment Questionnaire (HAQ), lipid profile, as well as radiological findings were collected. Patients underwent to anthropometric measures (WHR and BMI) and BIA for the evaluation of fat-free mass (FFM), fat mass (FM) and the derived indices (fat-free mass index (FFMI) and fat mass index (FMI)). In addition for each patient blood samples were collected to determine serum levels of several adipokines (leptin, adiponectin, visfatin, resistin). Statistical tests as well as linear and logistic regression analysis were carried out.

Results: DAS28-ESR was found to be related to FMI ($p=0.02$; $r=0.22$) and to BMI ($p=0.03$; $r=0.22$). In addition, in patients in whom DAS28-ESR remission was not achieved, FMI but not BMI was found to be related to the latter disease activity index ($p=0.007$, $r=0.37$). FMI was shown to correlate to HAQ ($p=0.01$, $r=0.31$). Higher serum levels of leptin were found to predict higher FMI and BMI ($p<0.0001$ for both, $r=0.68$ and $r=0.57$, respectively) with DAS28 being also related to the latter adipokine ($p=0.02$; $r=0.24$). FFMI was inversely related to adiponectin serum levels ($p=0.0003$; $r=-0.40$). Both male and female patients classified as underweight for BMI were found to have a normal mean FFMI, with both groups presenting a mean DAS28-ESR score indicating remission.

Conclusions: Either body fat composition assessed with BIA-related indices and serum leptin have been noticed to predict disease activity. Moreover nutritional status of patients in remission according to DAS28-ESR may be better assessed by determining indices brought by BIA along with BMI, in order to rule out rheumatoid cachexia on the basis of FMI and FFMI.

REFERENCE:

- [1] Ferraz-Amaro I, Gonzalez-Juanatey C, Lopez-Mejias R, Riancho-Zarrabeitia L, Gonzalez Gay MA. Metabolic syndrome in rheumatoid arthritis. *Mediators Inflamm* 2013.

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THU0169

RELATIONSHIP OF FRAILTY AND DISEASE ACTIVITY IN PATIENTS WITH RHEUMATOID ARTHRITIS: DATA FROM THE CHIKARA STUDY

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Background: Frailty is defined as degradation of physical and cognition function in elderly adult¹. The characteristics of frailty include not only physical problems as co-morbidity and disability, but also mental and social problems. It is unclear of relationship between frailty and disease activity of patients with rheumatoid arthritis (RA).

Objectives: We investigated the relative factors about frailty in patients with RA from a prospective observational study.

Methods: 95 from 100 patients entered the CHIKARA study (Correlation research of sarcopenia, skeletal muscle and disease Activity in Rheumatoid Arthritis) were investigated by frailty check list (maximal score is 25). According to reported article, frailty was defined from 8 to 25 and pre-frailty was from 4 to 7, and normal was from 0 to 3. We investigated relationship of disease activity in frailty, pre-frailty and normal groups, and analysed the relative factors for frailty.

Results: The prevalence of frailty, pre-frailty, and normal was 19%, 39% and 42%, respectively. The character of groups indicated at table 1. Frailty group was the oldest of three groups. Disease activity score 28 erythrocyte sedimentation rate (DAS28ESR) and matrix metalloproteinase 3 (MMP3) of frailty group was higher than those of pre-frailty and normal groups. Whereas, modified health assessment questionnaire (mHAQ) of frailty group was lower than those of pre-frailty and normal groups. Normal was 66.6% and frailty was 6.7% in remission patients. However, Normal was 13.3% and frailty was 46.7% in moderate and high disease activity patients (figure 1). The prevalence of frailty was increased with disease activity. The relative factors for frailty were age, locomotive syndrome, DAS28ESR, mHAQ, and Steinbrocker class, positively and leg muscle score and grip strength, negatively by univariate analysis. Steinbrocker class (odds ratio: 3.25 95% CI: 1.11–9.51, $p=0.031$) and mHAQ (odds ratio: 1.29, 95% CI: 1.13–1.46, $p<0.001$) were independent relative factors by multivariate analysis.

Abstract THU0169 – Table 1. The character of frailty, pre-frailty, and normal in patients with RA

	Frailty	Pre-frailty	Normal	P value
Age, years	72.5±10.3	68.6 ±11.3	60.7 ±16.4	0.01
Leg muscle score	84.9±5.9	86.2±6.4	93.2±9.7	<0.001
Grip, kg	12.6±6.9	17.7±7.1	18.1±6.2	0.013
Locomotive 5 score	11.1±5.8	6.4±4.9	2.6±4.0	<0.001
MMP3, ng/dl	143.7 ±122.0	95.9 ±66.0	88.6 ±52.0	0.033
DAS28ESR	3.62±0.97	3.27 ±1.02	2.83 ±0.96	0.015
mHAQ	0.9±0.7	0.4±0.2	0.1±0.1	<0.001
Sarcopenia, %	39	41	18	0.063

Conclusions: It was revealed that frailty involved disease activity and physical function in patients with RA. Control of disease activity is important to prevent not only disease progression, but also frailty.

REFERENCE:

- [1] Fried LP, Tangen CM, Walston J, et al. Frailty in older adults: evidence for a phenotype. *J Gerontol A Biol Sci Med Sci* 2001;56:M146–56.

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THU0170 RISK FACTOR FOR SERIOUS PULMONARY COMPLICATION IN PATIENTS WITH PRE-EXISTING LUNG DISEASE IN RHEUMATOID ARTHRITIS

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Background: Lung diseases, such as airway disease and interstitial lung disease (ILD), are often complicated in patients with rheumatoid arthritis (RA). The presence of those pre-existing lung diseases is one of the poor prognostic factors and risk factors for infectious pneumonia in patients with RA. There have been several concerned issues regarding pulmonary complications in RA patients with pre-existing lung diseases during treatment with disease-modifying antirheumatic drugs (DMARDs) because of infectious pneumonia or acute exacerbation in ILD, occasionally resulting in fatal outcome.

Objectives: We identified risk factors for serious pulmonary complications in patients with pre-existing lung disease during treatment with DMARDs in RA.

Methods: This study enrolled consecutive 487 RA patients at our hospital from 2005 to 2016 retrospectively. 110 of those 487 patients had pre-existing lung disease at the first visit to our hospital. At first, we divided those 110 patients into two subsets, one with development of serious pulmonary complication and the other without that during observational periods. We defined hospitalisation due to lung disease as a serious pulmonary complication regardless of the causes. Demographic and clinical data at enrollment as well as treatment regimens were collected by review of medical charts. We conducted a univariate analysis to compare the differences of clinical characteristics between the subsets. In multivariate analysis, the Cox proportional hazard model was employed to identify factors independently associated with serious pulmonary complication. The explanatory variables were chosen based on candidates ($p < 0.25$) identified by the univariate analysis. In addition, we focused on 42 RA patients during treatment

with biological DMARD (bDMARD), and identified their risk factors by the same procedure mentioned above.

Results: In 110 RA patients with pre-existing lung disease, the median age and disease duration at enrollment was 70 and 3 years, and 71% were female. Rheumatoid factor and anti-cyclic citrullinated protein antibody (anti-CCP) were detected in 97 (88%) and 95 (86%) patients. Methotrexate (MTX), sulfasalazine (SSZ), bDMARDs and corticosteroid were prescribed in 37 (34%), 48 (44%), 42 (38%) and 65 (59%) patients. During the median observation periods of 11 months, 17 (15%) patients had serious pulmonary complications due to pulmonary infection in 11, exacerbation of ILD in 5, and drug-induced pneumonia in 1. The univariate analysis identified candidate variables for serious pulmonary complications as follows: use of MTX and bDMARDs, and no use of SSZ. In multivariate analysis, use of bDMARDs (HR 2.9, 95% CI 0.99–9.0; $p = 0.05$) was identified as the independent risk factor. In 42 patients during treatment with bDMARDs, the univariate analysis identified candidate variables as follows: elder age, male, higher levels of anti-CCP, use of MTX, and no use of SSZ. In multivariate analysis, the higher levels of anti-CCP (HR 1.002, 95% CI 1.0003–1.004; $p = 0.0007$) and no use of SSZ (HR 441.8, 95% CI 1.1–4658460.2; $p = 0.04$) were identified as the independent risk factors.

Conclusions: Serious pulmonary complications should be more careful for RA patients with pre-existing lung disease during treatment with bDMARDs, particularly those with higher levels of anti-CCP or no use of SSZ.

Disclosure of Interest: None declared

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THU0171 IDENTIFICATION OF METHOTREXATE-INDUCED PULMONARY TOXICITY CASES IN A FULLY SEARCHABLE ROUTINE CLINICAL DATABASE

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Background: Methotrexate (MTX) remains the favoured disease-modifying anti-rheumatic drug for the treatment of rheumatoid arthritis (RA) and is frequently used in other inflammatory conditions. However, side effects are frequent and toxicity is of concern, especially since MTX-induced pulmonary side effects, including pneumonitis, are potentially fatal. Estimates of MTX-induced pneumonitis in the literature range from 0.3% to 7.5% of exposed cases (Barrera et al., 1994 Kremer et al., 1997).

Objectives: We aimed to identify and characterise MTX-induced lung injury in patients exposed to low-dose MTX at the Rheumatology Division of the Kantonsspital Aarau, Switzerland.

Methods: The revised diagnostic criteria for adverse pulmonary events due to MTX treatment as defined by Kremer et al 1997 were used to categorise MTX-induced lung injury. The electronic patient files of the Rheumatology Division are stored in a NoSQL-database (MongoDB), which is fully addressable by the Solr search platform (Apache Lucene). The entire database was searched for terms associated with methotrexate exposure and potential pulmonary side effects.

Results: Of 9'550 cases, 11 fulfilled the criteria for definite MTX-induced pulmonary injury, while three additional patients could be classified as suffering from probable MTX-induced pulmonary side effects. To determine the number of exposed cases, the case files were queried for the mention of MTX and related terms. 1'947 case files contained a reference to MTX. In a random sample of 395 of these cases, an exposure to MTX was verified in 328 (83%). Assuming a calculated exposure of 1'639 cases, MTX-induced lung injury was present in 0.85%.

Conclusions: In a comprehensive survey of patients exposed to MTX in a fully searchable routine clinical database, MTX-induced pulmonary injury occurred in a low frequency.

REFERENCES:

- [1] Barrera P, Laan RF, van Riel PL, Dekhuijzen PN, Boerbooms AM, & van de Putte LB. Methotrexate-related pulmonary complications in rheumatoid arthritis. *Ann Rheum Dis* 1994;53(7):434–439.
- [2] Kremer JM, Alarcon GS, Weinblatt ME, Kaymakian MV, Macaluso M, Cannon GW, et al. Clinical, laboratory, radiographic, and histopathologic features of methotrexate-associated lung injury in patients with rheumatoid arthritis: a multicenter study with literature review. *Arthritis Rheum* 1997;40(10):1829–1837.

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