POS0518

DIAGNOSTIC VALUE OF MUSCLE STRENGTH TESTS FOR THE DIAGNOSIS OF SARCOPENIA IN RHEUMATOID ARTHRITIS PATIENTS

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Background: Motor disorders in patients with rheumatoid arthritis (RA) may be associated with sarcopenia (SP). The frequency of secondary SP in RA patients reaches 17 - 37% [1, 2]. Currently, in patients with RA muscle strength is evaluated by methods proposed in geriatric practice [3].

Objectives: To determine the sensitivity, specificity, diagnostic accuracy, positive and negative predictive value of handgrip strength (HS) and chair stand test (5-times sit-to-stand, CST) for the diagnosis of sarcopenia (SP) in women with rheumatoid arthritis (RA).

Methods: 87 women (aged 40-75 years) with RA were enrolled in the study. We did not include patients with aseptic bone necrosis, femoral and knee endoprostheses and comorbidity that negatively affected on the bone tissue. All patients underwent handgrip strength by mechanical dynamometer and CST. Handgrip strength less than 16kg and CST more than 15 seconds were the criteria for probable SP. Assessment of muscle mass was carried out by dual-energy x-ray absorptiometry («Discovery A» Hologic, USA). Reduced muscle mass was determined as a decrease in appendicular muscle mass (AMM) < 15kg or appendicular mass index (AMI) < 5.5kg/m². Confirmed SP was diagnosed when there was a combination of low muscle strength and reduced muscle mass. For both tests of muscle strength assessment, the sensitivity, specificity, diagnostic accuracy of the method, as well as their positive and negative predictor value for the diagnosis of SP were calculated.

Results: Low handgrip strength and 5-times CST more than 15 seconds were found in 63 (72%) and 54 (62%) women, respectively. Among them only 20 (23%) patients had low AMM or AMI, so in these women SP was confirmed. For the handgrip strength the sensitivity of the method was 95%, and the specificity - only 34%, the diagnostic accuracy was 48%. The positive prognostic value of this test was 30%, and the negative value - 96%. The sensitivity, specificity and diagnostic accuracy of the CST were significantly lower than the handgrip strength and amounted to 50%, 21% and 28%, respectively. The prognostic value of this test, both positive (16%) and negative (58%), was also significantly lower than the assessment of handgrip strength in RA patients. We evaluated the diagnostic value of combination of two tests to identify individuals with probable SP: the sensitivity, specificity and diagnostic accuracy were 65%, 30% and 39%, respectively. Negative and positive predictive values were 71% and 24%, respectively, for combination of 2 tests, which was better than using only CST, but worse than using only hand dynamometry.

Conclusion: Muscle strength tests proposed by the European Working Group on Sarcopenia in Older People have a low specificity, diagnostic accuracy and positive predictive values for detecting SP in RA patients, which requires the development of other methods of the first step of diagnosis of SP in RA patients.

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Disclosure of Interests: None declared

DOI: 10.1136/annrheumdis-2021-eular.1322

POS0519

BONE MINERAL DENSITY, LEAN AND FAT MASS IN POSTMENOPAUSAL WOMEN WITH RHEUMATOID ARTHRITIS

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Background: The relationship between lean mass (LM), fat mass (FM) and bone mineral density (BMD) remains controversial. Some population studies have emphasized the positive association between them, while others have found an inverse relationship. RA patients are characterized by a decrease in muscle mass and an increase in fat mass. Such changes in body composition may be associated with low BMD.

Objectives: To study the relationship between BMD, LM and FM in postmenopausal women with RA.

Methods: 68 postmenopausal women with RA (median age 59 [54; 63] years) were included in the study. BMD and body composition were evaluated using two-energy X-ray absorptiometry. Correlation analysis between body composition parameters and BMD was performed with the Spearman method, correlation coefficients R for p<0.05 are presented.

Results: The average L1-L4 BMD was 0.92±0.16g/cm², total hip BMD - 0.84±0.15g/cm² and femoral neck - 0.73±0.13g/cm². 33 (48.5%) women had osteopenia, and 17 (25.0%) - osteoporosis (OP). Low appendicular LM was found in 5 (7.4%) and low

appendicular muscle index (appendicular LM/height², AMI) - in 10 (14.7%) patients. Overfat was revealed in 47 (69.1%) women, but only 20 (29.4%) women had BMI corresponding to obesity. The positive correlations between BMD in L1-L4, total hip and femoral neck regions and body weight (R=0.46, R=0.56 and R=0.50, respectively), trunk fat (R=0.4, R=0.51 and R=0.37, respectively), total FM (R=0.27, R=0.43 and R=0.34, respectively), trunk LM (R=0.55, R=0.54 and R=0.51, respectively), total LM (R=0.51, R=0.50 and R=0.52, respectively), appendicular LM (R=0.31, R=0.29 and R=0.37, respectively) and AMI (R=0.26, R=0.33 and R=0.51, respectively) were found out. In the multivariate linear regression analysis total LM was associated with BMD of lumbar spine (β=0.638, p=0.001) and total hip (β=0.473, p=0.008), and AMI - with femoral neck BMD (β=0.360; p=0.014). We found that FM hadn't a significant effect on BMD in any region.

Conclusion: 73.5% of patients with RA had a reduced BMD, and 14.7% women - low AMI. LM was positively associated with BMDs in different regions of interest, but FM had no effect on BMD. Further researches are needed to identify associations between body composition, inflammatory activity and bone health in patients with RA.

Disclosure of Interests: None declared

DOI: 10.1136/annrheumdis-2021-eular.1331

POS0520

ASSOCIATIONS BETWEEN THE NEOVASCULARIZATION OF CAROTID ATHEROSCLEROTIC PLAQUES, LIPID PARAMETERS AND IMMUNOLOGICAL DISORDERS IN PATIENTS WITH RHEUMATOID ARTHRITIS

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Background: Development of carotid atherosclerotic plaques (CAP) in patients (pts) with rheumatoid arthritis (RA) is associated with accumulation of traditional risk factors and immunological disorders. CAP neovascularization is associated with its inflammation and increasing vulnerability. Therefore, early detection of CAP neovascularization is important for prevention of potential cardiovascular complications, preferably using a non-invasive technique, such as contrast-enhanced ultrasound (CEUS) of the carotid arteries.

Objectives: To identify the relationship between the severity of CAP neovascularization, lipid parameters and RA-related parameters.

Methods: Evaluation of 23 RA pts, 8 males and 15 females, mean age 61 [58; 65] years, with a longstanding disease (7 [3;12] years), seropositivity for IgM rheumatoid factor (RF) (76%) and anti-cyclic citrullinated peptide (ACCP) (62%) and moderate clinical disease activity (DAS 28 3,9 [3,2;4,8]). Nineteen RA pts (83%) received Methotrexate, 35% - biological agents, 35% - low-dose glucocorticoids. All patients underwent bilateral CEUS of the carotid arteries using a PHILIPS IU22 ultrasound system with 3-9 MHz linear array transducer and i/v administration of SonoVue contrast agent. The severity of carotid intraplaque neovascularization (IPN) was visually assessed on a scale from 0 to 3 (Shah et al. 2007): 0 - no neovascularization, 1 (mild) - limited to moderate neovascularization, 2 (severe) - extensive appearance of neovascularization, 3 - in the presence of a pulsating vessel in the plaque image.

Results: Carotid IPN was found in all RA pts. Grade 1 of neovascularization was established in 39% pts (group I) and Grade 2 - in 61% pts (group II). Groups were comparable in terms of age, sex, body mass index, smoking, disease duration and activity RA (DAS 28 score). The degree of carotid IPN positively correlated with the LDL-C level (R = 0.46, p=0.04), and the TG level (R=0.56, p=0.01) and negatively correlated with the HDL-C level (R= -0.52, p=0.02) in all pts. The degree of neovascularization was also associated with RA duration (R=0.52, p<0.05) and ACCP-positivity (R=0.57, p=0.007). Aforementioned correlations were significant for both groups of RA pts. No association was found between the severity of IPN and the levels of RF, DAS28. Association between the degree of carotid stenosis and CRP concentrations (R=-0.73, p<0.05) was found in pts of group II.

Conclusion: CEUS of carotid arteries demonstrated the presence of a predominantly extensive carotid IPN in RA pts. Cases of more severe carotid IPN were associated with lipid parameters (positively with the LDL-C, TG levels and negatively with the HDL-C level), RA duration and ACCP-positivity. The relationship between the degree of carotid artery stenosis and CRP requires additional studies to determine the role of immunological disorders in the development of carotid intraplaque neovascularization in RA pts.

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Disclosure of Interests: None declared

DOI: 10.1136/annrheumdis-2021-eular.1509