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Disclosure of Interests: None declared

DOI: 10.1136/annrheumdis-2021-eular.3337

POS0571

NON-OBESE RHEUMATOID ARTHRITIS PATIENTS WITH LOW LOW-DENSITY LIPOPROTEIN HAVE GREATER CORONARY ATHEROSCLEROSIS BURDEN, PLAQUE PROGRESSION AND CARDIOVASCULAR EVENT RISK

G. Karpouzas¹, S. Ormseth¹, E. Hernandez¹, M. Budoff². ¹The Lundquist Institute, Rheumatology, Torrance, United States of America; ²The Lundquist Institute, Cardiology, Torrance, United States of America

Background: Rheumatoid arthritis (RA) patients with low body weight incur higher mortality than obese patients. Paradoxically, RA patients in the lowest low-density lipoprotein group (LDL <70mg/dl) may also experience higher cardiovascular disease (CVD) risk.

Objectives: We here explored whether abdominal obesity (waist-to-height ratio >0.58 in females and >0.63 in males) might moderate the effect of low LDL (<70mg/dl) on coronary atherosclerosis burden, progression and long-term CVD risk in RA.

Methods: One hundred fifty patients without symptoms or diagnosis of CVD underwent coronary computed tomography angiography. Plaque progression was evaluated 6.9±0.3 years later in 101 patients. Coronary artery calcium, number of segments with plaque (segment involvement score), and extensive (>4 segments with plaque) or obstructive disease (>50% stenosis) were assessed. CVD events were prospectively recorded, including cardiac death, myocardial infarction, unstable angina, revascularization, stroke, claudication, and heart failure hospitalization over 6.0±2.4 years of follow-up. Lipoprotein classes were directly measured. Oxidized LDL (oxLDL) was assessed with monoclonal antibody E06. Adjusted robust linear regression evaluated interactions between abdominal obesity and LDL groups on plaque outcomes. Per segment, adjusted robust logistic regression models explored obesity x LDL group interactions on new plaque formation and stenotic progression of prevalent plaques. Robust Cox regression models stratified by abdominal obesity evaluated the effect of LDL group (<70 vs. >70mg/dl) on CVD events.

Results: Non-obese patients with low LDL had the highest plaque burden (Figure 1A, all $p < 0.02$). Obesity moderated the effect of LDL on likelihood of extensive/obstructive disease (P for interaction = 0.061); specifically, LDL<70 associated with an increased likelihood of extensive/obstructive plaque in non-obese (adjusted OR 4.75 [95% CI 1.18-19.07], $P = 0.028$) but not obese patients (adjusted OR 1.55 [95% CI 0.39-6.08], $P = 0.532$). No differences in disease activity or inflammatory markers were seen across groups. Compared to LDL>70mg/dl, low LDL predicted an increased likelihood of high oxLDL (>median) in non-obese patients (adjusted OR 5.10 [95% CI 1.46-17.75], $P = 0.011$) but not obese patients (adjusted OR 0.50 [95% CI 0.11-2.21], $P = 0.36$, Figure 1B). Obesity further moderated the effect of LDL on likelihood of future development of plaque (P for interaction = 0.002) and increased stenotic severity of existing plaques (P for interaction = 0.040); in non-obese patients, low LDL associated with a greater likelihood of new plaque forming in segments without baseline plaque (adjusted OR 4.68 [95% CI 2.26-9.66]) and worsening stenotic severity in segments with prevalent plaque (OR 5.35 [95% CI 1.62-17.67]). This was not observed in obese patients (Figure 1C). Notably, in non-obese patients, low LDL associated with higher CVD event risk compared to those with LDL>70 mg/dl (HR 7.94 [95% CI 1.52-41.36], $P = 0.015$). This was not the case in obese patients (HR 0.32 [95% CI 0.04-2.40], $P = 0.27$, Figure 1D).

Conclusion: In non-obese RA patients, LDL<70mg/dl may reflect higher LDL oxidation and was associated with higher baseline coronary atherosclerosis burden, new plaque formation, stenotic plaque progression and greater CVD risk than LDL>70mg/dl.

Disclosure of Interests: George Karpouzas Speakers bureau: Sanofi/ Genzyme/ Regeneron, Consultant of: Sanofi/ Genzyme/ Regeneron, Grant/research support from: Pfizer, Sarah Ormseth: None declared, Elizabeth Hernandez: None declared, Matthew Budoff Consultant of: Pfizer

Figure 1 (A) Mean number of coronary segments plaque and log-transformed coronary artery calcium score across LDL/obesity groups, adjusted for age, gender, diabetes, and statin use. **(B)** Percent patients with elevated (>median) oxidized LDL (oxLDL) across LDL/obesity groups, adjusted for age, gender, hypertension, diabetes, and statin use. **(C)** Moderating effects of obesity on the association between low LDL and worsening stenosis of existing plaques and new plaque formation in coronary segments without baseline plaque, adjusted for age, time between scans, proximal segment location, time-averaged CRP, cumulative prednisone dose, and statin duration. New plaque formation model additionally adjusted for bDMARD duration. **(D)** The effect of low LDL on long-term cardiovascular risk stratified by obesity. * $p < 0.050$, ** $p < 0.010$, *** $p < 0.001$.

DOI: 10.1136/annrheumdis-2021-eular.3419

POS0572

THE ASSOCIATED FACTORS OF ULTRASONOGRAPHIC TENOSYNOVITIS IN PATIENTS WITH RHEUMATOID ARTHRITIS IN REMISSION

B. Fakhtakh¹, N. El Amri¹, K. Baccouche¹, H. Zeglaoui¹, E. Bouajina¹. ¹Farhat Hached Hospital, Rheumatology, Sousse, Tunisia

Background: Tenosynovitis is a common manifestation of rheumatoid arthritis (RA), but, is difficult to assess appropriately by clinical examination. In clinical remission, musculoskeletal ultrasound (MSUS) showed a predictive value of tenosynovitis for flares and joint destruction in RA (1).

Objectives: To assess the prevalence, the characteristics, and the factors associated with tenosynovitis in ultrasound examination of patients with RA in clinical remission.

Methods: A Cross-sectional study including patients with RA in clinical remission (DAS28 ESR ≤ 2.6) for at least 6 months. MSUS of 20 tendons (in wrists, hands and ankles) was performed in mode B and power Doppler (PD). Tenosynovitis was defined and scored according to the Outcome Measures in Rheumatology Clinical Trials (OMERACT). A total score for the tenosynovitis in B-mode (TBI) and PD (TDI) was calculated by summing the grades for each patient. SDAI and CDAI were calculated. Functional disability was assessed by the Health Assessment Questionnaire (HAQ). For the radiographic evaluations, we used the Van der Heijde score.

Results: Thirty-seven patients were enrolled, the mean age was 54.2 years±12.7 years and the sex ratio was 0.37. The mean disease duration was 8.1 years±5.1. The mean remission duration was 36.5 months ± 32.7. The prevalence of tenosynovitis was 40.5% in B-mode and 13.5% for PD. The most affected tendons were: extensor carpi ulnaris (B-mode: 21.6%, PD: 8.1%), tibialis posterior (B-mode: 10%, PD: 2.7%), peroneal (B-mode: 8.1%, PD: 2.7%), flexor digitorum superficialis and profundus (B-mode: 5.4%, PD: 0%) and extensor digitorum (B-mode: 2.7%, PD: 2.7%). Tenosynovitis was most frequently grade1 in B-mode (32.4%) and grade 2 in PD (10.8%). Grade 3 was identified only in B-mode in the peroneal tendons. The mean of TBI was 7.1±5.3 and the mean of TDI was 2.2±3.1. We found a significant association between remission duration and PD tenosynovitis (mean: 16.2 vs 39.7 months, $p = 0.05$). Tenosynovitis, in B-mode and PD, weren't associated with the swollen joints, the tender joints, the patient