Several serological biomarkers were measured in each cohort, selected due to the specific tissue metabolite they represent. These included: C2M (cartilage degradation); CTX-1 and PINP (bone resorption and formation); C1M and C3M (interstitial matrix degradation); CRPM (CRP metabolite) and VICM (macrophage activity).

Each biomarker was log transformed and min-max normalised in order to allow for direct comparison of each of the variables. Patient clustering was performed using Ward hierarchical clustering and the number of clusters determined using the GAP statistic. ANOVA test was used to identify differences in delta change in radiographic scores at 24 and 52 weeks in the RA placebo groups (n=271) only.

Results: Clustering analysis resulted in five different clusters (A-E). Cluster A and B were both comprised of >98% RA patients. Cluster D was comprised mainly of OA patients whilst clusters C and E were a mix of OA and RA patients.

Clusters A and B were characterised by high levels of all biomarkers compared to other clusters except for VICM, which is significantly lower in cluster A than in cluster B (Tukey test $p < 0.001$). Biomarker levels in Cluster C were all close to the median. Cluster D was characterised by low levels of all biomarkers compared to other clusters with significantly lower C2M levels, whilst cluster E also had low levels of markers, yet with significantly higher levels of CTX-1 compared to cluster D. When looking at the RA placebo groups there were no difference in change in SHP score at 24 weeks between the groups, (n=271, LITHE, OSKIRA), but a significant difference in SHP change 52 weeks (n=83, $p < 0.05$, LITHE).

Abstract AB0250 – Figure 1

Conclusions: We have identified putative RA profiles based on novel serological biomarker status. Whether patients in particular clusters may benefit from specific targeted treatments, according to their tissue turnover profile, will be investigated further.

Disclosure of Interest: None declared

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AB0251 ARE ACPA ASSOCIATED WITH MORE BONE LOSS OVER TIME IN PATIENTS WITH RA?

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Background: Anti-citrullinated protein antibodies (ACPA) are one of the most important serological markers for rheumatoid arthritis (RA) and have been suggested to play a pathophysiologic role by directly binding to osteoclasts. However, the effect of ACPA on systemic bone mineral density (BMD) and in particular their effect on changes in BMD over time is currently unknown.

Objectives: The aim of this study was to determine whether ACPA associate with changes in BMD over time in patients with RA.

Methods: Yearly dual X-ray absorptiometry (DXA) scores were performed during 5 years of follow-up in 412 patients with recent-onset RA participating in the IMPROVED study¹, a clinical trial in which patients were treated according to a remission- (disease activity score <1.6) steered strategy. The effect of the presence of ACPA on 1) Z-scores of lumbar spine and hip over time, and 2) prevalence of osteopenia/osteoporosis (defined as a T-score ≤ -1) over time was analysed using generalised estimating equations. Analyses were adjusted for age, gender, BMI, symptom duration, smoking status, disease activity, prednisone intake, usage of bisphosphonates, calcium intake and serum 25-OH vitamin D levels.

Results: ACPA-positive patients had a significantly lower lumbar spine ($p=0.04$) and hip ($p=0.01$) Z-score at baseline. There was no difference in prevalence of osteoporosis/osteopenia at baseline between ACPA-positive and ACPA-negative patients (OR (95% CI) 1.02 (0.55 to 1.19)). We hypothesised that ACPA-positive patients would have more BMD loss over time compared to ACPA-negative patients. However, ACPA-positivity did not associate with a stronger decline in Z-score over time at lumbar ($p=0.43$) or femoral sites ($p=0.67$). Additionally, no effect of ACPA-positivity was found on the development of osteoporosis/osteopenia over time ($p=0.23$).

Conclusions: ACPA-positive patients have a significantly lower baseline BMD compared to ACPA-negative patients. Surprisingly, ACPA do not associate with a decrease in BMD over time in patients who were treated according to a tight control strategy. These results indicate that ACPA alone do not contribute to bone loss after disease onset in the absence of inflammation/disease activity.

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AB0252 LOOSING DAS28-ESR, BUT STAYING IN BOOLEAN REMISSION- IS IT POSSIBLE? DATA FROM THE PROSPECTIVE, RANDOMISED RETRO TRIAL ON RHEUMATOID ARTHRITIS PATIENTS IN STABLE REMISSION

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Background: DAS28-ESR is the most widely used instrument to assess remission in rheumatoid arthritis (RA) patients. Nonetheless, substantial residual disease activity can be present in RA patients fulfilling DAS28-ESR remission. Therefore, more stringent criteria for remission have been developed. While it is known that patients can fulfil DAS28-ESR but fail ACR/EULAR Boolean remission criteria, the existence of the reverse is less known.

Objectives: To test the possibility to loose DAS28-ESR remission while staying in ACR/EULAR remission in patients with RA

Methods: Data were obtained from the prospective randomised RETRO study (EudraCT: 2009–015740–42), which recruits RA patients in stable remission. Remission was assessed by the following instruments every three months: DAS28-ESR, DAS28-CRP, CDAI, SDAI, PAS, and ACR/EULAR criteria. In the group of patients, escaping DAS28-ESR remission, but fulfilling ACR/EULAR Boolean remission, the individual components of DAS28-ESR were analysed that determined their escape from remission.

Results: 142 patients analysed, which were all in DAS28-ESR remission at baseline. Of them, 140 (98.59%) were in DAS-CRP-remission, 131 (92.25%) in CDAI-remission, 130 (91.55%) in SDAI-remission, 109 (76.76%) in ACR/EULAR remission and 66 (46.48%) in PAS-remission. We analysed upon the 1 year follow up