SAT0026

**HIGHER LEVELS OF NATURAL ANTI-PHOSPHORYLCHOLINE ANTIBODIES ARE ASSOCIATED WITH LOWER RISK OF INCIDENT CARDIOVASCULAR EVENTS IN YOUNGER PATIENTS WITH RHEUMATOID ARTHRITIS**

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**Background:** The increased cardiovascular (CV) risk in rheumatoid arthritis (RA), especially in seropositive RA, is not fully explained by traditional risk factors. Immuno-inflammatory mechanisms and autoantibodies could be involved in the pathogenesis of atherosclerotic disease. Recent studies have suggested that anti-phosphorylcholine antibodies (anti-PC) of IgM subclass counteract the generation of senescent and IL-17+ T-cells, have atheroprotective effects and may play a role in formation and stabilization of atherosclerotic plaque.

**Objectives:** To investigate the association between IgM anti-PC antibodies with cardiovascular (CV) morbidity in patients with RA in age and sex groups and by serostatus.

**Methods:** The study population was derived from the BARFOT early RA cohort, recruited in 1994–1999. The outcome was CV events i.e. AMI, angina pectoris, cardiovascular death and other CV death. The levels of IgM anti-PC were detected with ELISA in sera collected at the first clinical evaluation, at the end of the first year and at the end of the second year of follow-up. The IgM anti-PC level was dichotomized at the median value. Cox proportional-hazards regression models were applied. Analysis were stratified by median level of IgM anti-PC and performed within strata of age, sex and RA-autoantibodies.

**Results:** In all, 654 patients with early RA, 68% women, mean (SD) age 55(14.7) years, DAS28 5.2(1.3), 60% RF-positive and 60% ACPA-positive without prevalent cardiovascular disease, were enrolled. Clinical and immunological characteristics, traditional risk factors were assessed according to the protocol. The Kaplan-Meier estimates and Cox proportional-hazards regression models showed a significant association between anti-PC level at 2 years and outcome.

**Conclusion:** These results suggest that higher levels of IgM anti-PC are associated with a lower risk of incident CV events over 10 years in younger patients. The favourable atheroprotective effect of IgM anti-PC may be a part of explanation of lower risk of atherosclerotic disease in younger previously seronegative patients with rheumatoid arthritis.

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**SAT0027**

**DEVELOPMENT AND VALIDATION OF A NOMOGRAM COMBINING CLINICAL AND HISTOPATHOLOGICAL SYNOVIAL FEATURES FOR PREDICTING EARLY TREATMENT RESPONSE IN NAIVE TO TREATMENT RHEUMATOID ARTHRITIS**

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**Background:** Rheumatoid Arthritis (RA) is characterized by synovial tissue (ST) heterogeneity at disease onset in terms of inflammatory degree and microanatomical organization being related to treatment response.

**Objectives:** To develop a multiparametric tool for baseline treatment response prediction including disease characteristics and histopathologic features of ST biopsies, using a large single center (SYNGemUnit) naïve to treatment RA cohort.

**Methods:** 240 naïve to treatment RA who underwent US-guided ST biopsy, at the first clinical evaluation, were enrolled. Clinical and immunological characteristics were recorded for each patient. All ST FFPE sections were stained with H&E and classified by a pathologist, blinded to clinical characteristics, using the Krenn score [1] to assess the degree of ST inflammation. All naïve to treatment RA were treated according to the T2T scheme and DAS remission rate at 6-12 months was recorded. On the basis of the regression analysis, a nomogram was constructed that incorporated the significant factors predicting the “achievement of DAS-Remission at 6 months follow-up” in naïve RA. The performance of the nomogram was assessed by discrimination and calibration.

**Results:** Univariate analysis showed that RA who achieved early (6 months) DAS-remission had, at baseline, significantly lower total Krenn score (p<0.01), shorter symptoms duration (p<0.005) and lower disease activity (p<0.001) than RA not achieving this clinical outcome. ROC curve analysis revealed that RA having, at baseline, a total Krenn score ≤4.5 (AUC[95%CI]: 0.67[0.60-0.74]; p<0.001) achieved more likely DAS-remission at 6 months (53.1%) than RA with total Krenn score >4.5(28.9%; p<0.001). Interestingly, RA whose ST was biopsied within 3 months from joint symptoms beginning showed significantly lower ST inflammation as total Krenn score than RA whose ST was analyzed among 3-12 months (p=0.04) or after 12 months (p=0.002) since symptoms beginning. However, in terms of follicular structure presence, the microanatomical organization of the synovial inflammatory infiltrate did not differ comparing RA whose ST was biopsied within 3 months from joint symptoms beginning (44.4%) and RA whose ST was biopsied among 3-12 months (476%; p=0.74) or after 12 months (52.7%; p=0.33) since symptoms beginning.

Logistic regression analysis revealed that, at baseline, being VERA, not having HDA and having a total Krenn score ≤4.5 were synergistic factors of DAS-remission achievement at 6 months [OR:10.5(95%CI:2.28-48.01);p<0.05]. Based on the regression analysis, a nomogram integrating baseline clinical (disease activity duration) and histological (total Krenn score) characteristics was developed in which the value of each of the variables was given a point score. A total score was calculated by adding each single point score and, by projecting the value of the “total points” score to the “probability” line up to 87.5%.

**Conclusion:** Krenn score is a reliable tool for the semi-quantitative assessment of ST inflammation on US-guided ST biopsies being contingent to baseline disease characteristics and can be integrated within a nomogram to better predict the therapeutic response in naïve to treatment RA.

**References:**


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**Figure 1. Arthritis score among 3 group of mice.**