incident psoriasis were significantly lower in the DPP4i group versus sulfonylurea with the PS-stratified HR of 0.422 (95% CI 0.273 to 0.716).

Conclusion: DPP4i plus metformin was associated with a reduced risk of psoriasis than sulfonylurea plus metformin. These findings merit further investigation.

Cumulative Incidence Curve of M+DPP4 Group and M+S Group

Disclosure of Interests: None declared

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SAT0584

SPECIFIC ACPA REACTIVITIES AND INFLAMMATORY BIOMARKERS ALONG WITH ULTRASOUND TENOSYNOVITIS ARE ASSOCIATED WITH ARTHRITIS ONSET IN A POPULATION AT RISK FOR RHEUMATOID ARTHRITIS

A. Circiumaru¹, Y. Kisten¹, M. Hansson¹, V. Joshua¹, M. Sun¹, H. Rezaei¹, E. Af Klint^{1,2}, A. Antovic^{1,3}, A. Catrina^{1,2,3}, A. Hensvold^{1,3}. ¹Rheumatology unit, Department of Medicine, Karolinska Institutet, Stockholm, Sweden; ²Rheumatology clinic, Karolinska University Hospital, Stockholm, Sweden; ³Center for Rheumatology, Academic Specialist Center, Stockholm Health Region, Stockholm, Sweden

Background: Anti-citrullinated protein antibodies (ACPA) are characteristic markers for rheumatoid arthritis (RA), developing years before disease onset. Early clinical and biological biomarkers could provide useful information on the onset of RA in predisposed individuals.

Objectives: The aim of the study was to investigate whether ACPA along with inflammatory markers and musculoskeletal ultrasound changes could predict arthritis development in individuals at risk for RA.

Methods: ACPA-positive individuals with musculoskeletal complaints were referred from primary care to a rheumatology clinic, recruited in the Risk-RA research program and followed-up for up to 3 years, between April 2014 and October 2019. All individuals lacked arthritis both at clinical examination by a trained rheumatologist and ultrasound assessment of hands and feet and any other symptomatic joints (according to EULAR-OMERACT definition). Blood samples were collected at inclusion and were analyzed for 15 ACPA fine specificities (by custom made peptide array), 92 inflammation-associated protein biomarkers (by multiplex immunoassay with Olink extension technology) and HLA-SE (DR low resolution kit). Statistical analysis used univariate and multivariate models with backwards selection and cox regression.

Results: 268 individuals with a median age of 48 (36-58) were recruited, out of which 212 (79%) were females. 75 (28%) developed arthritis within 11 months of follow-up while the median follow-up for those not developing arthritis was 21 months (14-28). Increased ACPA levels, shorter symptom duration and RF positivity were the main differences between individuals developing arthritis and those who did not. In univariate models, the presence of HLA-SE, specific ACPA reactivities, certain inflammatory markers and ultrasound-detected tenosynovitis were associated with arthritis development. In multivariate analysis the presence of anti-cit-filaggrin (HR 2.1 (95% CI 1.2-3.7, p 0.01), IL6 levels (HR 1.4 (95% CI 1.2-1.7, p 0.0001) and tenosynovitis (HR 2.9 (95% CI 1.7-5.0, p 0.0001) remained significant predictors for arthritis onset.

Conclusion: Certain ACPA reactivities together with inflammatory markers and ultrasound-detected tenosynovitis predict arthritis development in predisposed individuals for developing RA.

Disclosure of Interests: None declared

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SAT0585

GEO-EPIDEMOLOGY OF AUTOANTIBODIES IN RA: DIFFERENT PREVALENCES IN FOUR ETHNICALLY DIVERSE RA POPULATIONS

E. C. De Meel¹, V. Derksen¹, L. A. Trouw¹, C. Terao², M. Tikly³, H. El-Gabalawy⁴, H. Bang⁵, T. Huizinga¹, R. Toes¹, D. Van der Woude¹. ¹Leiden University Medical Center (LUMC), Leiden, Netherlands; ²Kyoto University Graduate School of Medicine, Genomic Medicine, Kyoto, Japan; ³University of the Witwatersrand, Division of Rheumatology, Johannesburg, South Africa; ⁴University of Manitoba, Department of Internal Medicine, Winnipeg, Canada; ⁵Orgentec Diagnostika GmbH, Mainz, Germany

Background: Rheumatoid arthritis (RA) has been described in virtually every ethnic population. Most RA patients harbor anti-modified protein antibodies (AMPAs), including anti-citrullinated protein (ACPA), anti-carbamylated protein (anti-CarP), anti-malondialdehyde acetaldehyde (anti-MAA), and anti-acetylated protein antibodies (AAPA). However, it is unclear whether differences exist in the AMPA response between different ethnic groups. Such differences could provide new clues to genetic and environmental factors contributing to autoantibody development.

Objectives: To investigate the prevalence of different AMPA in four ethnically diverse RA populations, and their association with smoking.

Methods: Enzyme-linked immunosorbent assays were used to measure anti-CarP IgG, anti-MAA IgG (both in-house), and anti-acetylated vimentin IgG (Orgentec) in ACPA-positive sera of Dutch (NL, n=103), Japanese (JP, n=174), Canadian First Nations People (FN, n=100), and black South Africans (SA, n=67) fulfilling the 1987 ACR classification criteria for RA. Ethnicity-matched local healthy controls were used to calculate cohort-specific cut-offs. Logistic regression was used to identify whether ever-smoking was associated with AMPA seropositivity in each cohort, corrected for age, gender, and disease duration. Random-effects meta-analysis was used to pool the resulting odds ratios (OR).

Results: For all three AMPAs, median levels were higher in FN and especially SA than NL and JP patients (Figure 1). The median autoantibody levels in arbitrary units (in % of patients positive) for NL, JP, FN and SA RA patients were: anti-CarP IgG: 1157 (47%), 994 (43%), 1642 (58%) and 2336 (76%) (p<0.001); anti-MAA IgG: 131 (29%), 179 (22%), 251 (29%) and 257 (53%) (p<0.001); AAPA: 133 (20%), 136 (17%), 153 (38%) and 316 (28%) (p<0.001). Prevalence, meaning positivity, also differed significantly between cohorts for all AMPAs (p<0.001). There were also marked differences in total IgG levels in mean (SD) g/L: 13 (4) for NL, 17 (6) for JP, 18 (6) for FN, and 25 (8) for SA (p<0.001). When the autoantibody levels were normalized to total IgG, the differences in became less pronounced between cohorts (Figure 2). The median arbitrary units per g/L Total IgG for NL, JP, FN and SA RA patients were: anti-CarP IgG: 54, 25, 53, and 79; anti-MAA IgG: 6, 5, 8, and 9; and AAPA: 2, 2, 2, and 3, suggesting that autoantibody level differences may partly correspond to cohort-specific differences in total IgG, although the overall trend of higher levels in SA persisted. There was no association between smoking and anti-CarP or anti-MAA positivity, with pooled OR (95% CI) of 1.31 (0.79-2.18) and 0.85 (0.46-1.56), respectively. However, smoking was positively and consistently associated with AAPA positivity in each cohort: pooled OR (95% CI) of 2.01 (1.06-3.81).

Conclusion: In these ACPA-positive ethnically diverse RA populations, levels and prevalence of various AMPAs differ, suggesting that ethnic background and environment may influence the development of the autoantibody response in RA. Despite these differences, our results imply smoking as a consistent risk factor for AAPA across different ethnic backgrounds.

Figure 1: Levels in arbitrary units (AU) for three AMPAs and grams per liter (g/L) for Total IgG in the serum of four ethnically diverse RA populations. Patients clustered at the maximum were above the highest standard of the ELISA. Blue shading indicates the patient falling below the cohort-specific positivity cut-off; green shading is the normal range for Total IgG. Lines indicate median and interquartile range. P-values correspond to Chi-square tests on proportion of patients considered positive, indicated in percentages above graphs.