BACKGROUND: In rheumatoid arthritis (RA), cigarette smoking affects both rheumatoid factor (RF) and anti-citrullinated cyclic peptide/protein antibody (ACPAs) formation, but its association in relation to HLA-DRB1 alleles, especially shared epitope (SE) alleles, have been controversial among different races. 

OBJECTIVES: To investigate the impact of cigarette smoking and cessation on RF and ACPA levels in relation to HLA-DRB1 alleles in the largest RA cohorts in Asians.

METHODS: A total of 6,239 subjects from two independent Japanese cohorts were enrolled. Their precise smoking histories both before and after the onset of RA were collected in questionnaires. The latest RF and ACPA levels were used (mean disease duration 15.6 years). We defined top quadrant of levels of RF or ACPA as high levels. Associations between smoking status and positivities or high levels of ACPA or RF as well as effects of HLA-DRB1 alleles on the associations were investigated by multiple logistic regression models.

RESULTS: Smoking at onset was an independent risk of not only RF and ACPA positivities (RF, odds ratio (OR) 1.52, 95% confidence interval (CI) 1.26-1.85, p=1.8x10^{-5}; ACPA, OR 1.39, 95% CI 1.09-1.76, p=6.8x10^{-3}), but also high levels of these autoantibodies, especially RF (OR 2.06, 95% CI 1.70-2.48, p=7.4x10^{-4}; ACPA OR 1.29, 95% CI 1.06-1.57, p=1.2x10^{-2}). The larger ORs of RF than ACPA suggests that RF is more sensitive to cigarette smoking than ACPAs. The effects of cigarette smoking were significantly larger in males than in females. The patients who quit smoking before onset had no longer significant risks of high autoantibody levels compared to subjects who had never smoked (RF, OR 1.33, p=0.099; ACPA, OR 1.19, p=0.093), and the risk was slightly attenuated depending on cessation years (RF, 0-10 years OR 1.34, 10-20 years OR 1.31, > 20 years OR 0.97; ACPA, 0-10 years OR 1.38, 10-20 years OR 1.01, > 20 years OR 1.12). The effect of smoking on ACPA positivity and its high level was apparent only in the presence of SE alleles, while the effect on RF positivity and its high level was apparent despite the presence of SE alleles (Table below).

CONCLUSION: Cigarette smoking especially at RA onset is a significant risk of future high levels of ACPA and RF preferentially in males, and RF is more sensitive to smoking status than ACPA. The effect on ACPA is apparent only in the presence of SE alleles, indicating that an interaction between cigarette smoking and SE alleles affects ACPA formation. On the other hand, the effect of cigarette smoking on RF formation may be independent of SE alleles. Our study imply a novel potential mechanism of RA pathogenesis.

REFERENCES

SAT0615

THE DIFFERENT EFFECTS OF CIGARETTE SMOKING ON ANTI-CITRULLINATED CYCLIC PROTEIN ANTIBODY AND RHEUMATOID FACTOR FORMATION IN RELATION TO SHARED EPEITOME ALLELES IN JAPANESE RA PATIENTS

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SAT0616

DIETARY HABITS OF SIX AUTOIMMUNE DISEASES IN THE SPANISH POPULATION: A CROSS-SECTIONAL STUDY


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where milder, and non-overlapping with psoriasis. Disease activity was significantly associated with specific food categories in CD, UC and PS, mildly in RA and SLE, and PsA showed no association. High smoking cessation rates were observed in UC, CD and SLE, but not in Ps, RA and PsA. Tea/coffee and alcohol consumption was low in all ADs compared to controls.

Conclusion: Our results show previously unreported associations with dietary habits in rheumatic ADs.

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SAT0617

PRESENCE OF ANTI-BETA2 GLYCOPROTEIN-1 IGA ANTIBODIES MODERATES THE EFFECT OF INFLAMMATORY BURDEN ON CORONARY PLAQUE PROGRESSION IN RHEUMATOID ARTHRITIS

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Background: Beta-2-glycoprotein-1 (b2GPI), an apolipoprotein abundant in human plasma, is readily expressed in human atherosclerotic plaque. High frequencies of anti-b2GPI-IgA antibodies have been previously reported in both Rheumatoid arthritis (RA) patients and controls; their presence has been independently predictive of cardiovascular events in general patients. Objectives: We explored the role of a-b2GPI-IgA presence and their interaction with inflammatory load on occult coronary plaque progression in patients with RA. Methods: One hundred-one participants with a baseline plaque evaluation with coronary computed tomography angiography (CCTA) underwent follow-up assessment within 83±3.6 months. Coronary artery calcium (CAC) was quantified by the Agatston method. Subclasses (IgG, IgM, and IgA) of a-b2GPI Ab, anticardiolipin-Ab (ACL) and lupus anticoagulant (LA) were assessed on the day of baseline CCTA and reconfirmed 12 weeks later, if positive. Serum interleukin-6 (IL-6) was measured at baseline scan, while CRP was assessed on every clinic visit from baseline through follow-up scan. Multivariate linear regression models evaluated predictors of CAC progression; predictors entered as continuous variables included baseline CAC, age, waist-to-height ratio (obesity index), cumulative prednisone dose, years exposure to bDMARDs, statins and baseline IL-6 or time-averaged CRP. Gender, diabetes, hypertension, dyslipidemia, and a-b2GPI-IgA positivity were entered as dichotomous independent variables. Results: A-b2GPI-IgA antibodies were highly prevalent (34.7%) in contrast to other antiphospholipid-Ab subclasses (<4%). A-b2GPI-IgA presence predicted incident CAC [OR=3.69 (1.02-13.32), p=0.046] as well as greater CAC change from baseline, after adjustments for age, baseline CAC score and significant covariates [mean change (95% CI)] = 93.2 (69.8-116.6) vs. 56.0 (39.0-73.0) units, p=0.012. A significant interaction between a-b2GPI-IgA positivity and time-averaged CRP as well as baseline IL-6 on CAC progression was observed [beta=0.19, p=0.048 for time-averaged CRP and beta=0.26, p=0.029 for IL-6 respectively]; higher baseline IL-6 and time-averaged CRP associated with significant CAC progression exclusively in a-b2GPI-IgA positive patients but not in those without such Ab. Baseline IL-6> 4.66pg/ml and time-averaged CRP> 0.76mg/dl both associated with significantly higher CAC progression in a-b2GPI-IgA positive patients but not in negative ones (figure 1).

Conclusion: A-b2GPI-IgA antibodies independently contributed to occult coronary plaque progression in RA and specifically moderated the effect of inflammation on progression of atherosclerotic burden. Tight control of inflammation may be particularly important in Ab positive patients in order to prevent coronary plaque progression; additionally, a-b2GPI-IgA presence may serve as a predictive biomarker for atherosclerosis progression, especially in the context of higher inflammatory state.


SAT0618

BASELINE CHARACTERISTICS AND TREATMENTS AMONG PATIENTS WITH RHEUMATOID ARTHRITIS: THE CREDIT STUDY IN CHINA, 2016-2018

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Background: Rheumatoid Arthritis (RA) has been a huge public health issue among the Chinese population, but little is known about the current treatments among RA patients, especially with different disease activity levels. Objectives: To describe the baseline characteristics among all RA patients registered in the Chinese Registry of rheumatoid arthritis (CREDIT) and the treatment patterns by patients’ disease status. Methods: A total of 25,191 RA patients registered in CREDIT from Nov. 2016 to Apr. 2018 were enrolled. Patients’ baseline characteristics of demographics, disease characteristics, comorbidities, as well as treatment agents for RA were abstracted for analysis. Results: The mean age of patients was 53.0 years and 79.9% of them were female. The median disease duration from diagnosis was 2.0 years. The proportions of moderate/high disease activity according to the Disease Activity Score-28 joint count using C-reactive protein (DAS28- CRP>3.2) and Clinical Disease Activity Index (CDAI>10) were 76.1% and respectively. Among those patients with treatment records, a similar conventional systematic disease-modifying antirheumatic drugs (cDMARDs) usage was observed in remission/low activity patients and
Attitudes and perceptions of physical activity in patients with spondyloarthritis: a systematic review

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Background: Patients with arthritis are less likely to adhere to physical activity recommendations than are individuals in the general population. In contrast to rheumatoid arthritis (RA), which affects predominantly peripheral joints, axial spondyloarthritis (axSpA) affects predominantly the axial skeleton and may result in restricted spinal mobility. Both RA and axSpA are associated with an increased risk of cardiovascular disease, the development of physical disability, and decreased levels of physical activity. However, the extent to which the distinct joint distributions in these forms of inflammatory arthritis might differentially affect physical activity behaviors is not known. Several studies have addressed the relationship between physical activity behavior and disease-specific outcomes among patients with RA, but information about this among patients with axSpA is more limited.

Objective: To review systematically and synthesize qualitatively the literature about perceived facilitators and barriers to physical activity in patients with axSpA and identify the types of physical activity preferred by these patients.

Methods: PubMed and Scopus and reference lists were searched for quantitative and qualitative studies reporting on beliefs towards exercise and physical activity behavior and correlates of physical activity participation over three years in adults with rheumatoid arthritis. Arthritis Care Res 2011:63:1700–1705.

Results: Over three-quarters of RA patients registered in CREDIT were in moderate/high activity group, while 1021 (5.9%) patients received bDMARDs in moderate/high activity group. In terms of itsDMARDs (only tofacitnib was approved in China), the proportions of usage were lower for remission/low activity patients (0.2%) than for the moderate/high activity patients (0.3%). On the other hand, the proportion of glucocorticoids usage in remission/low activity patients (15.5%) was lower than in moderate/high activity patients (21.3%).

Conclusion: Over three-quarters of RA patients registered in CREDIT were in moderate/high activity disease. csDMARDs are the most frequently used medications for RA in China.

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SAT0620

Incentive and trend of hip fracture in Spain. Factors associated with the variability observed

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Background: It is known that in Spain there is a great variability between Autonomous Communities (CCAA) in the incidence and trend of hip fracture, with rates in certain regions that can double those of others. Although it is speculated with different hypotheses that explain it, there are no studies that demonstrate the reasons for this variability.

Objectives: 1.- To analyze the incidence and trend of hospital admissions for hip fracture, in Spain, during the period between 1999 and 2015. 2.- Analyze factors/risk markers (genetic, demographic, level and living conditions, health indicators, cohort effect centered on the period of the civil war, climatology and environment) that could explain the variability in incidence and trend between different CCAA.

Methods: Part 1: retrospective observational study, nationwide, based on the exploitation of an administrative database (MBDS) that collects hospital admissions from 1/1/1999 to 12/31/2015. Hip fractures were identified through the presence of ICD-9 820.0 to 820.9 as primary or secondary diagnosis. Only those that the patient was 50 or older were selected. The crude rates and adjusted for age of incidence of hip fracture were calculated by sex, age groups and by CCAA. The population census issued by the National Institute of Statistics (INE) was used to calculate this rate. The trend over the 15 years covered in the study was analyzed using Poisson regression and negative binomial models.

Part 2: ecological study, based on the analysis of the results obtained in part 1, with different risk markers obtained from the INE (except the 4), by CCAA. The analyzed factors were: 1.- Genetic; 2.- Demographic; 3.- Level and conditions of physical activity; 4.- Health; 5. Impact of the civil war. 6.- Climatology; 7.- Environment. This analysis was performed using bivariate correlations and univariate and multivariate linear regression.

Results: There were 744,848 patients diagnosed with hip fracture; 182,205 (24.4%) men and 562,643 (75.5%) women p <0.001. (Ratio M: V of 3.07). The mean age was 81.7 years (SD 8.9), 79.3 years (SD 8.5) in men and 82.5 years (SD 8.2) (p <0.001). In-hospital mortality was 5.7%. The average of the Charlson Index was 0.71 (SD1.14). The mean age was 78 years (SD 7.8). The trend for both sexes was -0.67% (95% CI 0.9990-0.9957) (p <0.001); in men it was -0.06% (95% CI 0.9975-1.0013) (p = 0.537) and physical activity participation in persons with rheumatoid arthritis. Arthritis Care Res 2011:63:1700–1705.

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