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

Yuki Ishikawa1, Katsunori Ikari2, Motomu Hashimoto3, Koichiro Ohnoura4, Masao Tanaka2, Hitomi Ito2, Atsuo Taniguchi2, Hisashi Yamanaka2, Tsurenori Mimori3, Chikashi Terao4.

[1] Joslin Diabetes Center, Harvard Medical School, Immunobiology, Boston, United States of America; [2] Tokyo Women’s Medical University, Institute of Rheumatology, Tokyo, Japan; [3] Graduate School of Medicine, Kyoto University, Department of Advanced Medicine for Rheumatic Diseases, Kyoto, Japan; [4] Graduate School of Medicine, Kyoto University, Department of Orthopedic Surgery, Kyoto, Japan; [5] RIKEN, Center for Investigative Medical Sciences, Yokohama, Japan; [6] Shizuoka General Hospital, Clinical Research Center, Shizuoka, Japan; [7] The School of Pharmaceutical Sciences, University of Shizuoka, Department of Applied Genetics, Shizuoka, Japan

Background: In rheumatoid arthritis (RA), cigarette smoking affects both rheumatoid factor (RF) and anti-citrullinated cyclic peptide/protein antibody (ACPA) formation, but its association in relation to HLA-DRB1 alleles, especially shared epitope (SE) alleles, have been controversial among different races1,2. Furthermore, the impact of cigarette smoking and its cessation on levels of RF and ACPA have not been well documented.

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 quartant of levels of RF or ACPA as high levels. Associations between smoking status and positivity or high levels of RF or ACPA 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 positivity but RF, odds ratio (OR): 1.19, 95% confidence interval (CI) 1.26-1.85, p=1.8x10-10; ACPA, OR 1.39, 95%CI 1.09-1.76, p=6.8x10-3), but also high levels of these autoantibodies, especially OR (RF 2.06, 95% CI 1.70-2.48, p=7.4x10-14; 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 ACPA. The effects of cigarette smoking were significantly larger in males than in females. The patients who quited smoking before onset had no longer significant risks of high autoantibody levels compared to subjects who had never smoked (RF, OR 1.33, p=0.059; ACPA, OR 1.19, p=0.007), and the risk was gradually attenuated depending on cessation years (RF, OR 10 years OR 1.34, 10-20 years OR 1.31, >20 years OR 0.97; ACPA, 10-20 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.

ACPA positivity smoking at onset
SE - 1.000 1.091
+ 1.754*** 2.665**

RF positivity smoking at onset
SE - 1.000 1.532
+ 1.131 1.599

ACPA High (≥ 236 (AU/mL)) smoking at onset
SE - 1.000 0.434
+ 2.204*** 3.051***

RF High (≥ 139 (kU/mL)) smoking at onset
SE - -
+ -

** p < 1.0x10^-3; *** p < 1.0x10^-5; **** p < 1.0x10^-6

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

Antonio Julián1, Sergio Hilario Martínez2, Jesús Tomero3, Juan D. Cañete4,2, Antonio Fernández-Nebro5, Francisco Blanco6, Jesús Rodríguez7, Francisco J. López-Castellanos8, Benjamin Fernández-Quilis9, Jordi Gratacos10, José Javier Pérez Venegas11, Carolina Pérez12, Rubén Querol Silva13, Alejandro Oliver14, Mercedes Alperi-López15, Carlos A. Montilla-Morales16, Jose Luis Andreu17, Juan Carlos Torre-Alonso18,2, M. Ángeles Aguirre-Zamorano19, Héctor Coroninian20, Paloma Vela-Casasempere21, Víctor Martínez-Tabó22, Sara Marínque Arija23, Joan Miquel Nolla24, Isabel González-Alvaro25, Santiago Muñoz-Fernández26, José Luis Marenco27, Carlos M. González28, Antonio Zea29, Marta Lopez Lasanta30, Daniel Roig31, Jose M. Pego-Reigosa32, Mireia Lopez Corteb33, Pedro Zarco-Monfort34, Mercedes Freire González35, Alba Erra36, Eulalia Diez Alvarez37, Santos Castaño38, Esther Rodriguez Almara39, Alicia García40, Patricia Carreira41, Georgina Salvador Alarcon42, César Díaz Torro43, Ricardo Blanco44, Alfredo Willich Dominguez45, José Antonio Mosquera Martínez46, Simon Sánchez Fernández47, Julio Ramírez48, Sara Marsal49,1, H Val Hebrón, Barcelona, Spain; H Guadalajara, Guadalajara, Spain; H Clínico, Barcelona, Spain; H Málaga, Málaga, Spain; H A Coruña, La Coruña, Spain; H Bellvitge, Barcelona, Spain; H Gregorio Marañón, Madrid, Spain; H San Carlos, Madrid, Spain; H Parc Taulí, Sabadell, Barcelona, Spain; H Virgen Macarena, Sevilla, Spain; H del Mar, Barcelona, Spain; H Asturias, Oviedo, Spain; H JUHGTP, Badalona, Barcelona, Spain; H Salamanca, Salamanca, Spain; H Puerta de Hierro, Madrid, Spain; H Monte Narón, A Coruña, Spain; H Oixsa Fco. Solís, Córdoba, Spain; H Moises Broggi, Sant Joan Despi, Barcelona, Spain; HG Alicante, Alicante, Spain; HU Marqués Valdecilla, Santander, Spain; H La Princesa, Madrid, Spain; HInfanta Sofia, Madrid, Spain; H Virgen Valme, Sevilla, Spain; H Ramón y Cajal, Madrid, Spain; H FHI Alcorcón, Madrid, Spain; H León, León, Spain; HU de 12 Octubre, Madrid, Spain; HCS Virgen de los Reyes, Sevilla, Spain; HM Terrassa, Barcelona, Spain; H Sant Pau, Barcelona, Spain; CHOurense, Ourense, Spain; HCH Pontevedra, Pontevedra, Spain; HGH La Mancha, Ciudad Real, Spain

Background: In the last years multiple genetic variants have been associated with autoimmune disease (AD) risk. However, much less is known on the association with important environmental factors like diet.

Objectives: The objective of the present study is to characterize the dietary patterns of six prevalent ADs, including rheumatoid arthritis (RA), psoriatic arthritis (PsA) and systemic lupus erythematosus (SLE).

Methods: A cross-sectional cohort of 11,621 Spanish subjects from Spain encompassing 1,949 RA, 2,186 psoriasis (PS), 1,437 psoriatic arthritis (PsA) and systemic lupus erythematosus (SLE), was recruited by the IMID-Consortium. The weekly consumption of sweets and pastries, and RA dietary patterns differences with controls. In PsA the dietary pattern differences with controls. SLE had a high consumption of sweets and pastries, and RA est differences in comparison to controls. In the rheumatic ADs several food categories were also found to be consumed differently compared to healthy controls, was recruited by the IMID-Consortium. The weekly consumption of sweets and pastries, and RA

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