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AB0197

INCREASED CIRCULATING ADIPONECTIN IS AN INDEPENDENT DISEASE ACTIVITY MARKER IN PATIENTS WITH RHEUMATOID ARTHRITIS: A CROSS-SECTIONAL STUDY USING THE KURAMA DATABASE

M. Katsushima¹, M. Hashimoto², M. Shirakashi¹, T. Yoshida³, W. Yamamoto⁴, K. Murakami¹, K. Murata², K. Nishitani², M. Tanaka², H. Ito², S. Matsuda⁵.

¹Kyoto University, Department of Rheumatology and Clinical Immunology, Kyoto, Japan; ²Kyoto University, Department of Advanced Medicine for Rheumatic Diseases, Kyoto, Japan; ³Kyoto Prefectural University of Medicine, Department of Nursing, Kyoto, Japan; ⁴Kurashiki Sweet Hospital, Department of Health Information Management, Kurashiki, Japan; ⁵Kyoto University, Department of Orthopedic Surgery, Kyoto, Japan

Background: Adiponectin is a major adipokine with pleiotropic effects on inflammatory conditions including rheumatoid arthritis (RA). Adiponectin generally has anti-atherogenic effects, and its serum level inversely correlates with body mass index (BMI) and visceral fat area (VFA). On the other hand, several studies have indicated a deleterious role of adiponectin in RA progression [1]. Recently, both low BMI and increased serum adiponectin have been reported as poor prognostic factors of RA [2, 3]. However, large-scale surveys have not been done focusing on both BMI and serum adiponectin, and it is unclear which factor provides further contribution to RA disease activity. In addition, the effects of biological disease-modifying antirheumatic drugs (bDMARDs) and Janus kinase (JAK) inhibitors on serum adiponectin are largely unknown.

Objectives: To clarify the relationship among serum adiponectin, body composition, current disease activity and therapeutic agents of RA.

Methods: We conducted a cross-sectional study in RA patients under treatment with agents including bDMARDs and JAK inhibitors. A total of 351 subjects from the Kyoto University RA Management Alliance cohort (KURAMA) were enrolled. We classified the participants into five body composition groups (overweight with or without visceral adiposity, normal with or without visceral adiposity, and underweight), according to the cut-off points for obesity and visceral fat used in Japan: BMI, 18.5 kg/m² for underweight and 25.0 kg/m² for obesity, and VFA, 100 cm² for visceral adiposity. Differences of continuous variables among the five groups were assessed by the Steel-Dwass test or one-way analysis of variance (ANOVA). We adopted a multiple standardized linear regression model to analyze effects of serum adiponectin level on DAS28-ESR.

Results: Serum adiponectin levels (20.9±12.5 vs. 14.7±8.4 µg/ml, $p < 0.001$) and DAS28-ESR (3.04±1.0 vs. 2.63±0.9, $p = 0.017$) in the underweight group were significantly higher than those in the others. In multiple regression analysis, serum adiponectin level, but not BMI, was positively correlated with DAS28-ESR (estimate = 0.0127, $p = 0.0258$). Subanalysis also showed that the use of bDMARD or JAK inhibitor did not have an obvious influence on circulating adiponectin.

Conclusion: In the multiple regression analysis we revealed a positive and independent correlation between serum adiponectin and DAS28-ESR in Japanese RA patients. Thus, serum adiponectin is an potential marker reflecting high disease activity of RA regardless of current medications.

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AB0198

SMOKING AND POSITIVITY OF RHEUMATOID FACTOR AND ANTI-CYCLIC CITRULLINATED PEPTIDE ANTIBODY IN THE GENERAL POPULATION

G. Kidoguchi¹, S. Fukui¹, T. Nakai¹, S. Kawaai¹, H. Ozawa¹, Y. Ikeda¹, A. Koido¹, Y. Ohara¹, H. Shimizu¹, K. Yamaguchi¹, H. Tamaki¹, M. Okada¹.

¹St. Luke's International Hospital, Immuno-Rheumatology Center, Chuo City, Japan

Background: It is well known that rheumatoid arthritis (RA) occurs due to environmental risk factors in addition to genetic risk factors. Rheumatoid factor (RF) and anti-cyclic citrullinated peptide antibody (ACPA) are strongly associated with RA, and these biomarkers could turn to be positive before development of clinical symptoms. While smoking, particularly Brinkman index (BI) is well known as a risk factor for RA and ACPA positivity, it is still unclear whether smoking intensity or smoking duration contribute more to positive RF and ACPA.

Objectives: This study aims to evaluate risk factors for RF and ACPA positivity in the general population. It also describes whether smoking intensity, duration, and BI are significant.

Methods: This is a cross-sectional, observational, single center study. We reviewed the baseline characteristics of the general population who checked RF and ACPA at Preventive Medicine Center in St. Luke's International Hospital, Tokyo, Japan from January 2004 to December 2018.

The data for basic demographics, dietary habit, smoking intensity, smoking duration, BI, and blood tests including RF and ACPA were extracted. The data was analyzed statistically.

Results: A total of 127472 people who checked RF are included. Of these 127472 people, 64504 (50.6%) are male and the mean age was 44.9 years. RF was positive in 11477 people (9.0%). Among these, 1667 (1.2%) were checked for ACPA, and 21 people (1.3%) had positive ACPA. None of variables demonstrated significant association with RF positivity. In contrast, BI and smoking duration was significantly associated with an increased risk of ACPA positivity (13.3 years vs 7.49 years, p value = 0.023), although the number of cigarettes smoked was not. The smoking duration for 10 years or more was associated with an increased risk of ACPA positivity even after adjusted for age and sex (adjusted hazard ratio: 2.47 [95% confidence interval: 1.04-5.87]; $p=0.04$).

Conclusion: In this study, no significant risk factor for positive RF was found. Even smoking was not associated with RF positivity. On the other hand, smoking duration, not smoking intensity was significantly associated with an increased risk of ACPA positivity.

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