

AB1133 HIGH CONSUMPTION OF SEAFOODS OR VEGETABLES NEGATIVELY CORRELATES WITH DISEASE ACTIVITY OF RHEUMATOID ARTHRITIS

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Background: Food intake is one of the important environmental factors of various diseases, and possibly influences the pathogenesis of RA. However, we have little knowledge about the impact of food intake on the pathogenesis of RA. Because each country has its own food culture, the study focused on the dietary habit in Japan is essential in order to clarify the clinical impact of food intake in Japanese RA patients.

Objectives: The aim of this study is to clarify the relationship between the dietary habit of RA patients and their disease status.

Methods: We took the questionnaire survey about dietary habit in 2015, in KURAMA (Kyoto University Rheumatoid Arthritis Management Alliance) cohort as single institute. Disease activity was also examined in this cohort. These data were combined and statistically analyzed.

Results: 563 RA patients were enrolled from KURAMA cohort; female: male 4:1, age 63 years old, disease duration 15.5 years, DAS28-ESR 2.8 on average. Multivariate analysis showed that the intake frequency of vegetables had statistically significant negative correlation with DAS28-ESR ($\beta=-0.17$, $p<0.01$), SDAI ($\beta=-0.15$, $p<0.01$), HAQ ($\beta=-0.15$, $p<0.01$) and MMP-3 ($\beta=-0.13$, $p<0.01$). The intake frequency of frozen foods had positive correlation with MMP-3 ($\beta=0.12$, $p<0.01$). The intake frequency of juice had positive correlation with DAS28-ESR ($\beta=0.11$, $p<0.01$) and SDAI ($\beta=0.11$, $p<0.01$). Factor analysis revealed five dietary patterns, which were labeled "seafoods", "meat and fried foods", "vegetables and fruits", "snacks" and "processed foods". The "seafoods" had statistically significant negative correlation with DAS28-ESR ($\beta=-0.10$, $p=0.027$), SDAI ($\beta=-0.11$, $p=0.015$), HAQ ($\beta=-0.11$, $p=0.015$) and MMP-3 ($\beta=-0.11$, $p=0.013$). The "vegetables and fruits" had also statistically significant negative correlation with DAS28-ESR ($\beta=-0.13$, $p<0.01$), SDAI ($\beta=-0.14$, $p=0.015$), HAQ ($\beta=-0.17$, $p<0.001$) and MMP-3 ($\beta=-0.14$, $p<0.01$).

Conclusions: This study implicates that the disease activity of RA may be alleviated by high consumption of vegetables and fruits, or seafoods.

Disclosure of Interest: None declared

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AB1134 CHARACTERISTICS OF AUTOIMMUNE FEATURED INTERSTITIAL LUNG DISEASE IN KOREAN PATIENTS

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Background: Interstitial lung disease (ILD) includes a heterogeneous group of disorders that result in diffuse parenchymal lung disease, with overlapping clinical, radiographic, and physiologic manifestations. Several rheumatologic conditions are associated with the development of ILD. There are many patients who are not diagnosed as definite connective tissue disease (CTD). These patients may have an undifferentiated connective tissue disease (UCTD).

Objectives: The aim of this study was to compare the prevalence and characteristics of patients with CTD-ILD, UCTD-ILD and Idiopathic pulmonary fibrosis (IPF) in Korean patients.

Methods: We study compared the prevalence and characteristics of patients with connective tissue disease-associated interstitial lung disease (CTD-ILD), undifferentiated connective tissue disease-associated interstitial lung disease (UCTD-ILD), or idiopathic pulmonary fibrosis (IPF) between January 2015 and June 2016 in Korea university guro hospital. Clinical characteristics, laboratory tests, and high-resolution CT images were analyzed and compared among three groups.

Results: CTD-ILD was identified in 13.0%, UCTD-ILD in 18.2%, and IPF in 68.7% among 307 patients. Female and younger age patients were dominant in CTD-ILD group. Pulmonary symptoms were more common in IPF, while extra-pulmonary symptoms were more common in CTD-ILD and UCTD-ILD group. Patients with CTD-ILD had more abnormal antibody tests than those of UCTD-ILD and IPF. Usual interstitial pneumonia pattern was dominant in HRCT images among three groups.

Conclusions: CTD-ILD is not able to be diagnosed accurately in ILD patients. A systematic evaluation of extra-pulmonary symptoms and serologic tests in patients with ILD can identify CTD-ILD, UCTD-ILD, and IPF.

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AB1135 ALLOPURINOL AND THE RISK OF INCIDENT PERIPHERAL ARTERIAL DISEASE IN THE ELDERLY AMERICANS: A U.S. MEDICARE CLAIMS DATA STUDY

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Background: Recently we found that use of allopurinol, the most commonly used urate-lowering therapy (ULT), was associated with a reduction of the risk of myocardial infarction and stroke, acute manifestations of CAD. Given that both PAD and CAD are manifestations of atherosclerosis and a similarity of disease pathophysiology between them, an obvious question was whether allopurinol use would reduce PAD. To our knowledge, no previous studies have examined whether allopurinol use reduces the risk of PAD.

Objectives: To examine whether new allopurinol use is independently associated with a reduction of the risk of incident peripheral arterial disease (PAD) in the U.S. elderly.

Methods: We used the 5% random Medicare sample from 2006–2012 to examine the association of allopurinol use and its duration with risk/hazard of incident PAD, in a retrospective cohort study. Multivariable Cox regression models adjusted for demographics, comorbidity, cardiac medications and cardiac conditions. Hazard ratios (HR) and 95% confidence intervals (CI) were calculated.

Results: We identified 26,985 episodes of incident allopurinol use in 25,282 beneficiaries, of which 3,167 allopurinol use episodes (12%) ended in incident PAD. In multivariable-adjusted analyses, allopurinol use was associated with HR of 0.88 (95% CI, 0.81, 0.95) for incident PAD, as was female gender, 0.84 (95% CI, 0.78, 0.90). In a separate multivariable-adjusted model, compared no allopurinol use, longer durations of allopurinol use were associated with lower HR of PAD: 181 days to 2 years, 0.88 (95% CI, 0.79, 0.97) and >2 years, 0.75 (95% CI, 0.63, 0.89). Other factors significantly associated with a higher hazard of PAD were age 75–<85 and ≥85, female gender, higher Charlson index score, and black race. Sensitivity analyses adjusting for cardiac conditions and medications, confirmed these findings with minimal to no attenuation of hazard ratios.

Conclusions: New allopurinol use was independently associated with a lower risk of PAD in the elderly. Longer allopurinol use durations seemed more protective. Mechanisms of protective effect need to be studied in future studies.

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AB1136 THE AGE OF ONSET OF RHEUMATOID ARTHRITIS CORRELATES WITH AIR POLLUTION AND HEALTH EXPENDITURE: RESULTS FROM MULTINATIONAL DATABASES

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Background: Environmental variables contribute up to half of the variation in the rheumatoid arthritis (RA) susceptibility. We have recently reported that the age of RA onset (RAo) varies across latitudes around the world, starting younger around the Tropic of Cancer (1). Latitude gradients have been used as a surrogate for studying the influence of the environment on the risks of disease in order to generate hypotheses for further investigation.

Objectives: This is an exploratory study to assess whether the age of RAo correlates with tropospheric pollutants (2), electromagnetic fields, Inequality-adjusted Human Development Index (I-HDI) and Health Expenditures as per national census of participating countries.

Methods: The age of RAo was obtained from the GEO-RA group database that involves 2,481 patients from 41 countries. Information of the tropospheric pollutant PM10 (particulate matter 10 μ), the I-HDI, and Health Expenditures per capita was obtained from the World Health Organization's reports. The average of each country's electromagnetic fields (nanotesla, nT) from the past 50 years was calculated using geographic coordinates per country through the magnetic field calculator of The National Centers of Environmental Information. Pearson's correlation and linear regression were used to evaluate the correlation of these environmental variables with the age of RAo by country.

Results: Complete data sets were available in 35 of the 41 countries. Overall, the mean age of RAo was 44±4.8 years, the annual average of PM10 of 57.5±39.3 μ g/m³, the Health Expenditure per capita of US \$2,212±2,742, and the electromagnetic fields of 41,900±8,720 nT. The age of RAo was younger in countries with high PM10 levels ($r=-0.61$, $p<0.01$), high inequality (I-HDI, $r=0.59$,

$p < 0.01$), and low Health Expenditure per capita ($r = 0.61$, $p < 0.01$); the age of RAO did not correlate with nT. A significant linear regression equation was found [$F(2,32) = 13.61$, $p < 0.01$, $R^2 = 0.46$] in the age of RAO, Health Expenditure per capita ($\beta = 0.0007$; CI 95% 0.00004 to 0.001) and PM10 levels ($\beta = -0.044$; CI 95% -0.085 to -0.002).

Conclusions: The tropospheric pollutant PM10 and the components of the Health Expenditure per capita such as the provision of health services, family planning activities and nutrition activities are variables worth to further study through hypothesis-testing designs.

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AB1137 THE ROLE OF SOCIAL DETERMINANTS ON THE PREVALENCE OF RHEUMATIC DISEASES IN LATIN AMERICA. A MULTILEVEL COPCORD STUDY

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Objectives: To determine the impact of individual and regional variables on the geographic distribution of RD across six Latin-American countries

Methods: This is a secondary multilevel analysis of cross-sectional data of COPCORD studies that investigated the prevalence of RD in Argentina, Colombia, Ecuador, México, Peru, and Venezuela. Individual factors were sex, age, comorbidities, job status, and Health Assessment Questionnaire (HAQ) score. Contextual level variables were country and subject's identification as indigenous. RD predictors, including individual and regional variables, particularly indigenous status were identified with logistic regression models. The effect of contextual variables was estimated with median odds ratio's (OR) estimation.

Results: Most individuals included in this analysis came from urban areas (82.40%); their mean age was 43.12 years (95% CI 43.01-43.35); and 56.0% were women. Nearly all of them reported >1 comorbidity (94.70%) and 72.19% were economically active. The prevalence of any RD varied from 1.55% in Peru to 26.09% in Argentina. The mean prevalence of Rheumatoid Arthritis (RA) was 1.58 (range 0.64 to 2.47) (table 1). Aside comorbidities, individual level variables associated to any RD were sex (OR: 1.35; 95% CI 1.28-1.43), age (OR: 1.02; 95% CI 1.01-1.03), and HAQ score (OR: 3.71; 95% CI 3.22-4.28). Crude comparisons showed significant variations among countries ($p < 0.01$) and indigenous groups (OR: 1.69; 95% CI 1.58-1.81). These findings were confirmed by adjusted analysis (Median OR 1.26; 95% CI 1.14-1.38) (table 2).

Table 1. General prevalences and sample sizes across countries

Country	n	%	Prevalence %			
			Any RD	RA	OA	Fibromyalgia
Argentina	1656	3.94	26.09	2.42	3.86	0.06
Colombia	6734	16.01	6.53	0.64	5.18	0.25
Ecuador	4877	11.60	13.2	0.88	10.58	2.05
Mexico	22175	45.69	18.34	2.47	12.01	0.82
Peru	1095	2.60	1.55	0.65	0.55	0.09
Venezuela	5512	9.45	14.94	0.9	16.47	0.38
Total/General	42049	100.00	16.00	1.58	10.42	0.77

Table 2. Individual and contextual factors associated to any RD

Any rheumatic diseases	OR	p	95% IC	
Any comorbidities	1,676	<0,001	1,542	1,821
Age (yrs)	1,019	<0,001	1,017	1,022
HAQ	2,456	<0,001	2,240	2,693
Schooling level	0,970	<0,001	0,962	0,978
	MOR*	p	95% IC	
Indigenous vs. Non-indigenous	1,266	0,015	1,146	1,386

Conclusions: There common factors associated to the prevalence of RD in the

region, however, the estimation of its impact varies in significant way across countries and related to the fact of belong to an indigenous group indicating an increase in the estimated ORs.

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AB1138 ENGAGEMENT IN A UK SMARTPHONE STUDY EXAMINING THE ASSOCIATION BETWEEN WEATHER AND PAIN: PRELIMINARY RESULTS FROM CLOUDY WITH A CHANCE OF PAIN

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Background: Smartphones can facilitate collection of temporally-rich self-reported data, and have proven to enable large recruitment. However, their viability to support epidemiological research is uncertain due to concerns about selection bias and unsustainable engagement.

Objectives: To examine the characteristics and engagement of participants in the first six months of Cloudy with a Chance of Pain, a UK smartphone-based study investigating the link between the weather and chronic pain.

Methods: Between 20th of January and 29th of February 2016, we recruited UK residents 17 years or older with chronic pain (≥ 3 months) who owned a smartphone. Participants received prompts from an app developed by uMotif, which they used to daily report the severity of ten pain-related symptoms. Of those who enrolled, those eligible for analysis provided sufficient baseline data to confirm they were ≥ 17 years old, and at least one symptom. The characteristics of those who were eligible were examined. Engagement per day was defined based on whether participants had completed any of the ten symptoms. Participants were then clustered by their engagement over time using a first-order hidden Markov models. Participant characteristics were then compared between the clusters.

Results: Of 7972 people who registered to participate, 6370 were eligible. 81% of participants were female, with a mean age of 49 years (SD 12.9). The most common diagnosis was arthritis (40% type unspecified, 19% rheumatoid arthritis), followed by fibromyalgia/chronic widespread pain (24%) and "other pain diagnosis" (23%). We identified four clusters of engagement: high (14%), moderate (22%), low (39%) and tourists (25%). Median days of data entry ranged from 1 (1-1) to 175 (IQR: 152-177) for the tourist and high engagement clusters respectively. Those in the high and moderate clusters ($n = 2249$, 35%) engaged on at least 50% of days in the study (high: 79%; moderate: 50%). Highly engaged participants were older (median 56 (47-63)) when compared to those who were low engagers (47 (39-57)) or tourists (49 (40-58)). A lower proportion of tourists were women (76% (95% CI: 74-78)), than in any other cluster (high: 82% (80-85), moderate: 84% (82-86), low: 81% (79-82)).

Conclusions: Cloudy with a Chance of Pain recruited a large sample of people with chronic pain, of whom over one in three participants engaged in smartphone-based symptom reporting for at least 50% of days in the first six months. Smartphone studies enable quick mass participation with sustained daily data entry, providing unprecedented volumes of daily data. While there may be selection bias towards older females in our study, younger men are also less likely to participate in studies using traditional data collection methods. Our study suggests that smartphones could provide a viable alternative to traditional data collection methods.

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AB1139 AUTOANTIBODY AGAINST COMPLEMENT COMPONENT 1Q SUBCOMPONENT IS ASSOCIATED WITH THE PATHOGENESIS OF RECURRENT PREGNANCY LOSS

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Background: In recurrent pregnancy loss (RPL), the pathogenesis of the majority of cases remains to be explained. Antiphospholipid syndrome (APS) is one