Furthermore, the rhythm of *PER3* was present exclusively in RA patients, but not in healthy participants.

Conclusion: Taken together, we conclude that the circadian rhythms of immune cells in RA patients are different from that in healthy individuals. The alteration can be observed on both cellular and RNA level. We postulate that the alterations in circadian rhythms may contribute to disease manifestations and may have impact for optimizing diagnosis and therapy in RA. Further analysis is required to expand the data set. It is also of interest to investigate the functionality of circadian clock genes in immune cells.

REFERENCES

- [1] Cutolo M, et al. Ann. Rheum. Dis. 67, 905–8 (2008).
- [2] Straub RH, et al. Arthritis Rheum. 56, 399–408 (2007).
- [3] Druz D, et al. Immunity. 46(1),120-132 (2017).
- [4] Buttgeriet, et al. Lancet. 371: 205–14 (2008).

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SAT0069

PROTECTIVE EFFECT OF PROTOCATECHUIC ACID RICH FRACTION OF TRIANTHEMA PORTULACASTRUM AGAINST COLLAGEN INDUCED RHEUMATOID ARTHRITIS VIA GUT MICROBIOTA MODULATION

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Background: Rheumatoid arthritis, a chronic inflammatory joint disease affects people all over the world. *Triantema portulacastrum* (TP) has been traditionally utilized for the treatment of rheumatism.

Objectives: The current study was envisaged to evaluate the effect of protocathechuic acid rich fraction of TP on type II collagen induced rheumatoid arthritis, inflammation and microbial population of gut by using rodent model.

Methods: Hydroethanolic extract of TP was fractionated with three different solvents (ethyl acetate, chloroform and n-butanol) and quantitatively analyzed with HPLC-DAD method which revealed n-butanol fraction of TP (BFTP) is rich in protocathechuic acid along with other phenolic compounds. Animals were randomly divided into five groups. Four groups were injected with bovine type-II collagen (BTC-II; 100µg) in Freund's complete adjuvant (0.1 ml) intradermally. On day 21, animals were again treated with BTC-II along with booster incomplete Freund's adjuvant injection. After 24 hrs, animal groups were administered intraperitoneally with their respective drug treatment, i.e., vehicle, BFTP (100, 200 and 400 mg/kg b.w.) and methotrexate (3 mg/kg b.w.), respectively once in a day for next 21 days. At the end of experiment serum level of pro-inflammatory cytokines was determined, and gut microbiota was analyzed by using Illumina HiSeq.

Results: Results revealed BFTP preadministered group exhibited significantly reduced level of paw swelling and arthritis score as compared to vehicle group. Inflammatory markers (IL-1β, IL-6, IL-7, IL-23 and TNF-α) of rheumatoid arthritis were also significantly alleviated by BFTP. Histological studies of mice ankle soft tissue also support the protective effect of BFTP. Additionally, BFTP repair altered gut microbial communities by reducing relative loads of inflammatory microbes such as *Mucispirillum*, *Helicobacter* and *Lachnospiraceae*.

Conclusion: The results conclude that BFTP possess beneficial anti-inflammatory response in arthritic model and can be used as a potential anti-arthritic agent for the management of arthritis.

Disclosure of Interests: None declared

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Rheumatoid arthritis – prognosis, predictors and outcome

SAT0070

PROTEOMIC SPECTRUM PROFILE IN INFLAMMATORY AND DEGENERATIVE ARTHRITIS

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Background: The identification and quantification of protein biomarkers present in tissues and body fluids is a new area of interest in the clinical management of rheumatic diseases. Proteomics may identify novel biomarker(s) which assist in understanding the pathogenesis of rheumatic disorders with diagnostic and prognostic implications. In addition, proteomic techniques in RA may be helpful to identify newer autoantibodies and inflammatory acute phase proteins.

Yet, the integration of potential biomarkers resulting from rheumatic proteomics analyses in differential diagnosis of rheumatologic disorders is not yet fully established and so several studies are needed to confirm the efficacy of these approaches.

Objectives: The purpose of this study was to use Matrix Assisted Laser Desorption Ionization – Time of Flight – Mass Spectrometry (MALDI-TOF-MS) to identify differentially expressed disease-related and condition-specific peptide in serum of patients with Rheumatoid arthritis (RA) and osteoarthritis (OA).

Methods: Hundred participants were divided into three groups as following: RA group (35 patients with Rheumatoid arthritis representing patients with inflammatory arthritis); OA group (35 patients with Osteoarthritis representing patients with non-inflammatory arthritis); healthy control group (30 healthy volunteers). All participants were subjected to full history taking; clinical examination; and clinical Assessment of disease activity in RA patients using Disease activity score 28 (DAS-28); routine laboratory investigations; Acute phase reactants; serological tests; plain x-ray of affected joints, as well as serum proteomic profile using Magnetic beads (MB) separation and (MALDI – TOF – MS).^[1] Using the spectral data from the three groups, three different classification models for the three groups were generated using GA, SNN and QC algorithms. The GA model showed the best sensitivity and specificity in the three trials (RA versus control, OA versus control, and RA versus OA).

Results: In comparing RA versus control group; the results revealed 101 peaks that discriminated the RA from the control group; 53 were significant (PWKW p>0.05) and 48 nonsignificant. Three peaks (14;25;62) were significant and 2 were nonsignificant (43;53).

Regarding OA versus control group; 95 peaks were identified that discriminated the OA from the control group; 38 were significant (PWKW p>0.05) and 57 nonsignificant. Three peaks (18;3;14) were significant and peak 75 and 23 were nonsignificant.

Finally the RA group was discriminated from the OA group, the trial showed 113 peaks 73 were significant (PWKW p>0.05) and 40 nonsignificant. Five peaks were integrated (75:7767.82 40:2953.29 41:2991.59 48:4054.75 68:6434.51), and all integrated peaks were significant. The integrated peaks showed that all peaks were downregulated except peak 40 was upregulated.

Conclusion: Data obtained from proteomic analysis allow differentiation between RA, OA, and healthy subjects. Because of its simplicity and accuracy, (MALDI-TOF-MS) is a promising method for identifying differentially expressed inflammatory versus degenerative disease-related peptide.

REFERENCE

- [1] Lorenz P, Ruschpler P, Koczan D, Stiehl P, Thiesen HJ. From transcriptome to proteome: differentially expressed proteins identified in synovial tissue of patients suffering from rheumatoid arthritis and osteoarthritis by

an initial screen with a panel of 791 antibodies. *Proteomics* 2003; 3(6): 991–1002.

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SAT0071

ANALYSIS OF CHRONOLOGICAL CHANGES IN JAPANESE VERSION OF HEALTH ASSESSMENT QUESTIONNAIRE SCORE AND FACTORS ASSOCIATED WITH J-HAQ REMISSION AT 5 YEARS AFTER DISEASE ONSET IN PATIENTS WITH RHEUMATOID ARTHRITIS USING THE IORRA COHORT

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Background: Recent advances in rheumatoid arthritis (RA) treatment including the introduction of biologics have greatly affected treatment strategies for RA, achieving remission as a realistic treatment target. However, few reports have been concerned chronological changes in long-term physical dysfunction among large numbers of RA patients in daily practice.

Objectives: To evaluate chronological changes in Japanese version of Health Assessment Questionnaire score (J-HAQ) score and J-HAQ remission rates at 5 years after RA onset using the Institute of Rheumatology, Rheumatoid Arthritis (IORRA) cohort.

Methods: RA patients who developed RA between 2000 and 2010 and who first visited our hospital during the year of RA onset were divided into two groups: 1) former onset group (RA onset between 2000 and 2005) and 2) recent onset group (RA onset between 2006 and 2010). J-HAQ scores and J-HAQ remission rates at baseline and at 5 years after onset were investigated for each group, and factors associated with J-HAQ remission after 5 years were assessed by logistic regression analysis. Methotrexate (MTX), corticosteroid (steroid) and biologic DMARDs user (bDMARDs) was defined as the patients if they were used each medication during the observation period.

Results: The former onset group and recent onset group included 357 and 291 RA patients, respectively. For the former onset group, the average J-HAQ score/J-HAQ remission rate at baseline and 5 years after the onset were 0.659/54.6% and 0.430/71.4%, respectively. The recent onset group showed significant improvements relative to the former onset group in J-HAQ score/J-HAQ remission rates at baseline and 5 years of 0.705/52.2% and 0.316/78.4%, respectively ($p=0.011/0.044$). The percentage of MTX and bDMARDs users was significantly higher in the recent onset group (former vs. recent onset group; MTX: 70.9% vs. 86.6% [$p<0.0001$]; bDMARDs: 5.3% vs. 23.0% [$p<0.0001$]). Significant factors associated with achieving J-HAQ remission at 5 years after RA onset were: patients in the recent onset group ($p<0.001$), male ($p<0.001$), younger ($p<0.001$), lower J-HAQ score ($p<0.001$) at baseline, and non-steroid user ($p<0.001$).

Conclusion: In daily practice, J-HAQ scores for RA patients remarkably improved with recent advances in RA treatment strategies. To achieve J-HAQ remission at 5 years of RA onset, beginning treatment in the early disease stage is needed to prevent deterioration of J-HAQ and treatments that avoid steroid use appear to be important.

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SAT0072

EVALUATION OF RHEUMATOID ARTHRITIS TREATMENTS AND JOINT OUTCOMES IN RHEUMATOID ARTHRITIS-ASSOCIATED INTERSTITIAL LUNG DISEASE

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Background: RA-associated interstitial lung disease (RA-ILD) is an extra-articular manifestation of RA and is one of the leading causes of death in patients (pts) with RA.¹ Previous studies have indicated that clinical factors such as age, sex, smoking and autoantibody positivity are strongly associated with RA-ILD.² There is also evidence of active RA being related to increased risk for clinically apparent ILD.³ However, there are limited data on how pts with RA-ILD are managed for their joint conditions and joint outcomes.

Objectives: To evaluate RA treatment patterns in pts with subclinical and clinical RA-ILD compared with pts with RA without ILD, and to assess joint disease activity at baseline and change in disease activity by treatment in all cohorts.

Methods: Data from adult pts with RA enrolled in a longitudinal sequential RA registry were analysed. Pts in the registry were evaluated annually by a rheumatologist for disease activity and treatment, and semi-annually on multiple clinical patient-reported outcomes (PROs) and resource utilisation parameters. Pts with chest computed tomography (CT) scans performed to evaluate clinical indications for ILD and with blood samples were included in this analysis. Pts with chest CT scans that were indeterminate for ILD were excluded from the study. Pts were then divided into two mutually exclusive groups: non-ILD RA pts and RA-ILD pts. RA-ILD pts were further divided into subclinical and clinically evident ILD. Date of chest CT scan was considered the index date. The two cohorts were compared using descriptive statistics to summarise baseline differences in demographics, disease activity measures, serostatus and treatments. Kruskal-Wallis test for continuous variables and chi-square test for categorical variables were performed, with two-sided significance level of 0.05. Multivariable linear regression was used to evaluate change from baseline to 12 months in joint disease activity for pts with available data at baseline and follow-up.

Table 1. Baseline characteristics and treatments by RA-ILD groups

	No ILD (n=29)	ILD (n=46)	Subclinical ILD (n=29)	Clinically evident ILD (n=17)
Age, years, mean (SD)	53.0 (12.2)	66.9 (9.5)*	68.3 (9.6)*	64.6 (9.1)*
Duration of RA, years, mean (SD)	16.9 (11.6)	23.0 (13.3)*	24.4 (14.4)*	20.6 (11.0)
Female, n (%)	28 (96.6)	36 (78.3)*	23 (79.3)	13 (76.5)
History of smoking, n (%)	12 (41.4)	29 (63.0)	20 (69.0)	9 (52.9)
RF positive, n (%)	n=27 18 (66.7)	39 (84.8)	24 (82.8)	15 (88.2)
RF titre, IU/mL, mean (SD)	n=27 105.0 (177.9)	338.7 (618.0)*	423.2 (759.3)*	194.7 (174.1)*
ACPA positive, n (%)	15 (51.7)	40 (87.0)*	26 (89.7)*	14 (82.4)*
ACPA titre, IU/mL, mean (SD)	87.1 (130.0)	212.8 (191.9)*	183.7 (149.3)*	262.6 (245.7)*
CDAI score, mean (SD)	n=21 21.1 (15.6)	n=39 26.3 (14.5)	n=25 26.3 (14.6)	n=14 26.4 (14.9)
mHAQ score, mean (SD)	n=27 0.4 (0.4)	n=43 0.6 (0.5)	n=27 0.5 (0.5)	n=16 0.6 (0.5)
Previous TNFi bDMARD, n (%)	2 (6.9)	7 (15.2)	2 (6.9)	5 (29.4)
Current TNFi bDMARD, n (%)	12 (41.4)	16 (34.8)	10 (34.5)	6 (35.3)
Previous non-TNFi, n (%)	0 (0.0)	3 (6.5)	0 (0.0)	3 (17.6)*
Current non-TNFi, n (%)	3 (10.3)	5 (10.9)	2 (6.9)	3 (17.6)
Previous steroids, n (%)	16 (55.2)	31 (67.4)	19 (65.5)	12 (70.6)
Current steroids, n (%)	6 (20.7)	22 (47.8)*	13 (44.8)*	9 (52.9)*
Previous MTX, n (%)	3 (10.3)	5 (10.9)	4 (13.8)	1 (5.9)
Current MTX, n (%)	7 (24.1)	17 (37.0)	14 (48.3)	3 (17.6)

* $p<0.05$ vs no ILD

ACPA=anti-citrullinated protein antibody; bDMARD=biologic DMARD; ILD=interstitial lung disease; mHAQ=modified HAQ; TNFi=TNF inhibitor