POS0188

DISEASE ACTIVITY OUTCOME MEASURES ARE ONLY AVAILABLE IN HALF OF THE ELECTRONIC MEDICAL FILES OF PATIENTS WITH AXIAL SPONDYLOARTHRITIS FOLLOWED IN AN OUTPATIENT CLINIC: THE RESULTS OF AN AUDIT OF A TERTIARY-CARE RHEUMATOLOGY DEPARTMENT.

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Background: Current recommendations for management of patients with axial Spondylarthritis (axSpA) include regular collection of validated disease activity outcomes.

Objectives: This study aimed at evaluating the proportion of patients for whom the elements allowing the calculation of the validated outcome measures were available on the visits reported on the electronic medical records (EMR) and the factors associated with the presence of such information on the EMR.

Methods: This was a cross-sectional and monocentric observational study conducted in a tertiary-care rheumatology department, EULAR center of excellence and ASAS center. We performed a systematic electronic search among all patients with a SpA diagnosis code who attended an outpatient visit between February 1st, 2018 and February 28th, 2019. Thereafter, a manual search was performed in order to check whether disease activity outcome measures (or the elements allowing its calculation): BASDAI individual questions, Disease activity Global, CRP, BASDAI and ASDAS) were reported on EMR. Patient's and physician's demographics disease characteristics (including treatment) and whether the patient had participated in a systematic review were also collected. A descriptive analysis of the percentage of EMR with available outcomes was performed, and the characteristics of patients in whom these measures were available/were not available evaluated by univariable and multivariable analysis (including only variables with p < 0,10 on the univariate)

Results: 320 EMR of axSpA patients seen in the outpatient clinic were screened and selected. Among them, 178 (55.6%) had at least one disease activity outcome measure reported, while 144(45%) and 123 (38.4%) had a BASDAI and an ASDAS reported, respectively. The most frequently reported disease activity items were duration of morning stiffness (n=230, 72%) and CRP (n=224, 70%). Only previous participation on an educational program for self-assessment was found to be independently associated with a reported disease activity outcome: among the patients participating in such program, 93.1% (n=27/29) had a disease activity measure available, compared to 51.9% (n=151/291) in those who did not participate in such program (p<0.001) (Table 1)

Conclusion: Implementation of recommendations with regard to regularly collecting disease activity outcome measures is not optimal. The participation in educational programs including self-assessment educational programs might be one of the keys to improve such implementation.

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Figure 1. Frequency of disease activity measures reporting in the Electronic Medical Record of patients with axial Spondyloarthritis, followed in a tertiary care rheumatology department outpatient clinic

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Table 1. Factors associated with the presence of a reported disease activity measures on the electronic medical file of patients with axial SpA

	Total (n=320)	At least one disease activity measure available (n=178)	No disease activity measure available (n=142)	Univariable p-value	Multivariable analysis p value
Age (years)	46.2 (14.0)	46.8 (14.2)	45.5 (13.8)	0.404	-
Disease duration (years)	13.3 (11.8)	13.8 (12.4)	12.4 (11.0)	0.339	-
Male gender	186 (58.1%)	96 (53.9%)	90 (63.4%)	0.112	-
University studies (n=276)	149 (46.6%)	87 (48.9%)	62 (43.7%)	0.637	-
Radiographic sacroiliitis (n=257)	171 (66.5%)	101 (56.7%)	70 (49.3%)	0.993	-
MRI sacroiliitis (n=214)	169 (52.8%)	97 (54.5%)	72 (50.7%)	0.34	-
HLA B27 positive (n=267)	196 (61.2%)	118 (66.3%)	78 (54.9%)	0.826	-
Current bDMARD	199 (62.2%)	116 (65.2%)	83 (58.5%)	0.265	-
Age of Rheumatologist	45.5 (8.85)	44.4 (8.47)	47.0 (9.15)	0.011	-
Participation in a holistic systematic review	29 (9.1%)	27 (15.2%)	2 (1.5%)	<0.001	0.001

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POS0189

SERUM IFN α CONCENTRATIONS MEASURED WITH SINGLE-MOLECULE ARRAY TECHNOLOGY IN SJÖGREN'S SYNDROME REFLECT BLOOD INTERFERON-STIMULATED GENE EXPRESSION

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Background: Type I interferon (IFN-I) activation is a prominent feature of several Rheumatic and Musculoskeletal Diseases (RMDs) including primary Sjögren's syndrome (pSS), systemic lupus erythematosus (SLE) and systemic sclerosis (SSc). Ultrasensitive single-molecule array (SiMoA) technology has facilitated the measurement of subfemtomolar concentrations of IFNs [1-3].

Objectives: Here, we tested the performance of a commercially available SiMoA kit for detection of IFN α in serum from pSS, SLE, and SSc and correlated serum IFN α to whole blood IFN-stimulated gene (ISG) expression.

Methods: Serum IFN α 2 was measured in healthy controls (HC; n=68) and patients with pSS (n=85, n=110), SLE (n=24) and SSc (n=23) using a ready-to-use IFN α SiMoA kit on a HD-X Analyzer. IFN-I activation was additionally determined from paired samples of whole blood IFN-stimulated gene (ISG) expression of IFI44, IFI44L, IFIT1, IFIT3, and MxA by RT-PCR or MxA-ELISA.

Results: Serum IFN α 2 levels were elevated in pSS (median = 61.3 fg/mL) compared to HC (median < 5fg/mL) and SSc (median = 11.6 fg/mL), lower compared to SLE (median = 313.5 fg/mL), and positively correlated to whole blood ISG expression (rs=0.71-0.76, p<0.001). Comparable to MxA-ELISA (AUC=0.93), IFN α 2 SiMoA identified pSS with high ISG expression (AUC=0.90) with 80-93% specificity and 71-84% sensitivity. Blinded validation in an independent pSS cohort yielded a comparable accuracy of 89%. Multiple linear regression indicated independent associations of autoantibodies, IgG, and use of hydroxychloroquine with serum IFN α 2 concentrations in pSS. Confirming the literature [4], serum IFN α 2 levels were lower in SLE patients in remission (DORIS classification) compared to patients not in remission.

Conclusion: Thus, SiMoA serum IFN α 2 reflects blood ISG expression in pSS, SLE and SSc. In light of IFN-targeting treatments, SiMoA could potentially be applied for patient stratification or high-throughput retrospective analysis of stored clinical trial material.

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POS0190

ASSOCIATION BETWEEN OSTEOARTHRITIS-RELATED SERUM BIOCHEMICAL MARKERS OVER 11 YEARS AND KNEE SYMPTOMS IN MIDDLE-AGED ADULTS

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Background: Serum levels of cartilage and joint-specific biochemical markers such as cartilage oligomeric matrix protein (COMP), matrix metalloproteinase (MMP)-3, and hyaluronan (HA) are associated with cartilage degradation, joint tissue degradation, and synovitis in patients with OA. Change in these biomarkers may precede the morphological and clinical manifestations of OA and therefore have been explored as predictive markers in OA. However, few studies have evaluated the association of OA-related biomarkers with knee symptoms in general population-based middle-aged adults

Objectives: To describe the associations between OA-related biomarkers and knee symptoms in middle-aged adults followed up over 10-13 years

Methods: Blood samples were collected during the Childhood Determinants of Adult Health (CDAH)-1 study at baseline (year: 2004-06, age: 26-36 years) and 10-13 year follow-up (CDAH-3; year: 2014-2019, age: 36-49 years). Serum samples from baseline (n=156) and follow-up (n= 167) were analyzed for three OA-related biomarkers – namely COMP, MMP-3, and HA– using ELISA. Knee symptoms (pain, stiffness, and dysfunction) were assessed using the WOMAC scale during the CDAH-3 phase. Univariable and multivariable (adjusted for age,

Table 1. Cross-sectional and longitudinal association between WOMAC symptoms and OA-related biomarkers

Variables	Longitudinal Biomarker at CDAH-1, knee symptom at CDAH-3	Cross-sectional Biomarker at CDAH-3, knee symptom at CDAH-3
	Adjusted ^a Coef. (95%CI) p-value	Adjusted ^a Coef. (95%CI) p-value
COMP (Predictor)		
WOMAC-total	1.047 (1.035, 1.060) p<0.01	1.088 (1.017, 1.159) p<0.01
Pain	1.026 (1.002, 1.050) p=0.03	1.156 (0.989, 1.324) p=0.04
Stiffness	1.019 (0.988, 1.051) p=0.23	0.877 (0.708, 1.057) p=0.12
Dysfunction	1.045 (1.030, 1.061) p<0.01	1.040 (0.949, 1.130) p=0.38
MMP3 (Predictor)		
WOMAC-total	1.026 (1.020, 1.031) p<0.01	1.017 (1.010, 1.023) p<0.01
Pain	1.020 (1.009, 1.030) p<0.01	1.013 (1.001, 1.025) p=0.03
Stiffness	1.020 (1.004, 1.035) p=0.01	1.004 (.987, 1.021) p=0.66
Dysfunction	1.029 (1.022, 1.037) p<0.01	1.019 (1.010, 1.026) p<0.01
HA (Predictor)		
WOMAC-total	0.995 (0.991, 0.999) p<0.01	1.007 (1.003, 1.010) p<0.01
Pain	0.999 (0.991, 1.006) p=0.75	1.008 (1.002, 1.015) p=0.01
Stiffness	0.989 (0.980, 0.998) p=0.03	0.997 (0.989, 1.007) p=0.65
Dysfunction	1.003 (0.998, 1.009) p= 0.22	1.015 (1.010, 1.020) p<0.01

Bold denotes statistically significant^aModel adjusted for age, sex, and BMI

sex, and body mass index (BMI)) zero-inflated Poisson regression models with random effects were used to describe the above associations

Results: The prevalence of knee pain was 46%. In the multivariable model, adjusted for age, sex, and BMI, there was a significant positive association between COMP ($\beta=1.156$, 95%CI: 0.989, 1.324; $p=0.04$), MMP-3 ($\beta=1.013$, 95%CI: 1.001, 1.025; $p=0.02$), and HA ($\beta=1.008$, 95%CI: 1.002, 1.015, $p=0.01$) with knee pain and WOMAC-total score (Table 1) in middle-aged adults. The increase in knee pain per ng/ml increase in COMP, MMP-3, and HA was 15.7%, 1.3%, and 0.8%, respectively. The overall mean biomarker levels decreased over 10-13 years; however, the mean WOMAC-total scores were higher in participants whose COMP and HA levels increased (COMP: 24 (27.31), HA: 14.20 (22.60)) compared to those in whom it decreased or remained stable (COMP: 9.84 (16.83), and HA: 8.28 (13.22)) during this period. There was a significant positive association between COMP ($\beta=1.026$, 95%CI: 1.002, 1.050, $p=0.03$) and MMP-3 ($\beta=1.020$, 95%CI: 1.009, 1.030, $p<0.01$) measured at baseline and knee pain assessed after 10-13 year in the middle-aged adults (Table 1)

Conclusion: OA-related biochemical markers such as COMP and MMP-3 were positively associated with knee pain in population-based middle-aged adults. These results suggest biochemical markers measured in middle-aged adults may be used as a marker of joint pain

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POS0191

THE VALUE OF MIR-20B, MIR-22, MIR-26A, MIR-125B AND MIR-221 IN RHEUMATOID ARTHRITIS

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Background: Micro-RNAs (miRNAs) are an endogenous small, single-stranded, non-coding RNAs with a 18-25 nucleotide long and have been reported as a potential extracellular biomarkers of various diseases. They mainly decrease the gene expression by inhibiting the translation or cause mRNA destabilization.

Objectives: The aim of the study was to identify miRNAs whose plasma expression level is associated with RA prevalence and/or activity.

Methods: A total of 74 unrelated individuals, 50 with RA and 24 in a control group were enrolled to the study. Real-time PCR was used to evaluate the plasma expression levels of 5 miRNAs: miR-20b, miR-22, miR-26a, miR-125b, miR-221.

Results: We found the differences in four out of five evaluated miRNAs between RA and HC group – miR-26a, $p<0.0001$; miR-125b, $p<0.0001$; miR-20b $p<0.0001$; miR-22, $p=0.005$. Graphical presentation of the results is shown in Figure 1. The logistic regression results showed that miR-22 ($p=0.0003$) and miR-26a ($p=0.049$) are the most important molecules distinguishing RA patients and healthy controls in the study. MiR-22 was positively correlated with ESR ($r_s=0.41$), CRP ($r_s=0.49$) and DAS28 ($r_s=0.33$) and miR-26a was positively correlated with ESR ($r_s=0.49$), CRP ($r_s=0.41$), number of swelling joints ($r_s=0.43$), number of painful joints ($r_s=0.74$) and DAS28 ($r_s=0.63$). Moreover, miR-22 expression was different between rheumatoid factor (RF) positive and RF negative patients ($p=0.04$).

Conclusion: The results showed that miR-22 ($p=0.0003$) and miR-26a ($p=0.049$) may be the most useful in evaluated panel of miRs distinguishing RA