(number of swollen [SJ] or tender joints [TJ] ≥1), Leeds Enthesitis Index (≥1), number of dactylitis (≥1), Body Surface Area (BSA, ≥3%), Patient Global Assessment (PGA, ≥20), Health Assessment Questionnaire (HAQ, ≥0.5), pain VAS (≥15), C-reactive protein (CRP, ≥1 mg/dL). Sub-analyses after stratification according to ongoing treatment (csDMARDs versus bDMARDs) were also performed.

**Results:** The study population (53.2% men; mean [± standard deviation, SD] age 52.9±12 years; mean [±SD] disease duration 8.6±7.7 years) included 200 patients treated with csDMARDs (71% methotrexate) and 300 with bDMARDs (73% anti-TNF agents). The rates of DAPSA remission and VLDA were similar in the overall population (25.8 vs 22.2%, respectively; p=0.18) and in bDMARD subgroup (23.7 vs 26.7%, respectively; p=0.85), but greater for DAPSA remission in csDMARD patients (23.5 vs 15.5%, respectively; p=0.04). DAPSA LDA was significantly more frequent than MDA in 26.4%, respectively; p=0.0001), with no significant differences in bDMARD vs csDMARD subgroups. The level of agreement was good between DAPSA remission and VLDA (kappa=0.72), but only fair between DAPSA LDA and MDA (kappa=0.30), with a higher agreement in bDMARD than csDMARD patients for both DAPSA remission/VLDA (kappa 0.74 vs 0.6, respectively), and DAPSA LDA/MDA (kappa 0.34 vs 0.23, respectively). Levels of residual disease activity (figure 1) were similar for DAPSA remission and VLDA, with the exception of skin domain (22.4 vs 16.2%, respectively; p=0.04). Compared with patients in MDA, those in DAPSA LDA showed more frequently residual joint involvement (SIJ 47.3 vs 32.6%, respectively; p=0.007; TJ 66 vs 42.2%, respectively; p=0.0001), elevated PGA (63.5 vs 40.9%, respectively; p=0.0001), and elevated HAQ (50.7 vs 36.3%, respectively; p=0.009).

**Conclusion:** In our real-life cross-sectional analysis, the agreement between DAPSA and VLDA/MDA criteria was good only for the definition of remission, whereas DAPSA was significantly less stringent than MDA (especially in csDMARDs treated patients) in defining LDA, with a great proportion of patients showing residual arthritis and disability.

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**SAT0658**

**A LONGITUDINAL ANALYSIS OF ANTI-FHL1 ANTIBODIES IN A SWEDISH COHORT OF PATIENTS WITH IDIOPATHIC INFLAMMATORY MYOPATHIES**

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**Background:** Antibodies targeting a novel and muscle-specific autoantigen, the Four-and-a-half-LIM-domain 1 (anti-FHL1), have been identified in patients with idiopathic inflammatory myopathies (IIM).

**Objectives:** The aim of this project was to evaluate when anti-FHL1 autoantibodies are present in the course of the disease and if autoantibodies titers vary over time.

**Methods:** The anti-FHL1 antibody status was obtained from a previous study comprising a cross-sectional analysis from where we selected sera from IIM anti-FHL1+ patients (n=25) and sex and age matched sera from IIM anti-FHL1 patients (n=51), and healthy controls (HCs, n=50). Levels of anti-FHL1 autoantibodies were evaluated by ELISA. Patients included in the study had at least one sample available at time of diagnosis and one consecutive serum sample with an interval of 36 months. All patients were followed at the Division of Rheumatology, Karolinska University Hospital from January 1982 to December 2017. HCs sera collected at a single time point were tested.

**Results:** In the IIM group we included 76 patients with a total of 320 serum samples. Median follow-up time was 108 months, with median of 4 samples available per patient. In total, we identified the presence of anti-FHL1+ antibodies in n=31 IIM patients, corresponding to the group of

**Disclosure of Interests:** None declared

anti-FHL1+ (n=25) and in anti-FHL1- (n=6) from the cross-sectional analyses. One HC had positive anti-FHL1 titers. We subdivided the patients into 4 groups: anti-FHL1+; “highly positive” (O.D.>1, n=1); “intermediate positive” (1>O.D.>0.75, n=6); “baseline negative” that seroconverted to anti-FHL1+ within the first 36 months. The anti-FHL1+ “negative” group presented constant low antibody titers during the longitudinal follow-up.

Conclusion: Anti-FHL1 antibody positivity was detected in patients with high titers of anti-FHL1+ autoantibodies in the first available serum sample or developed within the first 36 months after diagnosis and persisted over time. Among 14 (57%) patients from the group “baseline negative” seroconverted to anti-FHL1+ within the first 36 months. The anti-FHL1+ “negative” group presented constant low antibody titers during the longitudinal follow-up.

Disclosure of Interests: Angeles Shunashy Galindo-Feria: None declared, Ellitka Divišová: None declared, Cátia Ferreira-Batista: None declared, Maryam Dastmalchi: None declared, Edvard Wigren: None declared, Angeles Shunashy Galindo-Feria: None declared, Susanne Gräslund: None declared, Ingrid E. Lundberg Grant/research support from: Sobi, Roche and UCB, Karla Munoz Esquivel: None declared, Joan Condell: Medical representative - Farmitalia Carlo Erba, Pharmacia, Pharmacia & Upjohn, Yamanouchi/Astellas., Consultant for: Bristol Myers Squibb, and from Astra Zeneca., Consultant for: She is a scientific advisor for Bristol Myers Squibb, and at A Tyr.

Do IMU movements correlate with BASFI? Correlation coefficients were as follows: lumbar AFE -0.57; rotation -0.59; side flexion -0.45; cervical F/E -0.55; rotation -0.61; side flexion -0.39. BASFI correlations with BASMI were comparable.

Content Validity/Comprehensiveness: No major ceiling or floor bias issues were found in the response to the OMERACT TRUTH filter to assess the instrument.

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Acknowledgement: This study was funded by FOREUM (www.foreum.org)

Disclosure of Interests: None declared.

Table 1. Results of ICC for different IMU spinal mobility tests

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Background: Loss of spinal mobility is one of the most characteristic problems for people with axial spondyloarthritis (axSpA) and is predictive of loss of function. Traditional measures such as the BASMI fail to capture many elements of spinal mobility and lack responsiveness to change. Inertial Motion Unit (IMU) sensors can be used to accurately measure spinal movement without requiring significant operator expertise.

Method: Patients with axSpA fulfilling ASAS classification criteria were recruited. ViMove system was to obtain ROM by attaching two IMU sensors at the cervical (Occiput-T3) and lumbar spine (L1-Sacrum). Intrarater, inter-rater and test-retest reliability of IMU tests were assessed by intraclass correlation coefficients (ICC). The maximum range of movement for anterior flexion/extension (AFE), lateral flexion (Left-Right) and rotation (Left-Right) were recorded for the lumbar and cervical region. These six values were used in a composite score (IMU-ASMI) which referenced equivalent ROM values from normal subjects in an earlier criterion validity study. Pearson correlation coefficients with BASFI were calculated for each component as well as the overall score.

Results: The study included 40 patients (12 females, 28 males) with a mean age of 48 (24-71). Subjects had a wide range of severity of axSpA. The mean BASMI was 4.8 (range 0.7 to 8.2, SD 1.9). The mean IMU-ASMI was 4.0 (range 0.1-9.2, SD 2.1). The sensor based measurements had good to excellent reliability (Table 1) and correlated closely with BASMI (r=0.79). The mean BASFI was 4.6 and the IMU-ASMI correlated closely with BASFI (r=0.71).

Face Validity: Each IMU test presents spinal movement in angles and can also be represented as a normalized severity index analogous to BASMI. The mean cervical and lumbar IMU-ASMIs were 3.5 and 4.4 units, respectively.

Construct Validity: Do IMU movements correlate with their corresponding traditional measurements? As expected, the closest correlations were between IMU and goniometer cervical rotation (r=0.83) and between IMU and tape measure lumbar side flexion (r=0.84). Correlations between Schober’s test and IMU lumbar AFE and between tragus to wall and IMU cervical FE were moderate (r=0.62, 0.65).

Do IMU movements correlate with BASFI? Correlation coefficients were as follows: lumbar AFE -0.57; rotation -0.59; side flexion -0.45; cervical F/E -0.55; rotation -0.61; side flexion -0.39. BASFI correlations with BASMI were comparable.

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Background: CRYOglobulinemic vasculitis is immune complex mediated vasculitis of medium and small-size vessels. This vasculitis involves mainly kidneys, peripheral nervous system, skin and joints. Currently, no standardized outcome measures are available for the evaluation of treatments in patients with cryoglobulinemic vasculitis.

Objective: To identify a core set of outcome measure (what to measure) for clinical studies for mixed cryoglobulinemic syndrome, following the OMERACT filter 2.0. [Ref]

Method: A search was made in Medline (via PubMed) and Embase using a standardized search [filter https://omeracthandbook.org]. This review considered studies that included patients with Mixed (type 2 and 3) cryoglobulinemic syndrome, any type of outcome measures, articles in
the English language and considered only SLR, RCT, cohort, case control and case series (>5 patients). Data were screened independently by three reviewers, recorded on a prespecified extraction form and summarized qualitatively. Considering core areas and core domain set was drafted. The results were presented and voted by a Consensus Committee including physicians with expertise in rheumatology, kidney and infectious diseases. Specific domains were separately voted and scored from 1 (strongly disagree) to 5 (strongly agree). Agreement was calculated as the percentage of agree/strongly agree. Consensus was reached in case of >70% of agreement.

Results: In the review were included 88 studies of which 4 randomised clinical trial (3%, 144 patients), 3 systematic literature reviews (9%, 401 patients), 25 cohort studies (27%, 1284 patients), and 56 other observational studies (61%, 2871 patients). The most frequent domains were: bio-humoral activity markers (e.g. cryocrit, rheumatoid factor, complementemia), viral infection and liver function, reversible and non reversible manifestation of skin, peripheral nerve, kidney, joint. Only a few studies included as life impact area, survival and safety. No studies analyzed included economical impact. Drafted core domains within core areas and percent agreement from the Delphi survey are reported in Table I. Additional core domains included adverse events and viral infection, considered as contextual factor.

Conclusion: This is the first study aimed at identifying the core outcome measures in cryoglobulinemic vasculitis. Further studies will be needed to evaluate appropriate instruments to measure these outcome domains to be applied in clinical trials and practice.

REFERENCES

Disclosure of Interests: None declared

SAT0662
MxA IS A CLINICALLY APPLICABLE BIOMARKER FOR TYPE I INTERFERON ACTIVATION IN SYSTEMIC LUPUS ERYTHEMATOSUS AND SYSTEMIC SCLEROSIS

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Background: Activation of the type I interferon (IFN) system has been found in large subsets of patients with systemic autoimmune diseases. This is usually assessed with a laborious quantification of IFN-stimulated genes. An easier and cheaper biomarker would facilitate implementation of type I IFN measurements in diagnostic laboratories. Previously, we described Myxovirus resistance protein 1 enzyme immunoassay (MxA-EIA) for systemic evaluation of type I IFN activity in primary Sjogren’s syndrome [1].

Objectives: To assess the applicability of the MxA-EIA to detect systemic type I IFN activation in patients with systemic lupus erythematosus (SLE) and systemic sclerosis (SSc).

Methods: Whole blood intracellular MxA protein levels were measured in SLE (discovery cohort: n=25; replication cohort retrieved from the CHILL-NL study [2]; n=102), SSc (n=28) and healthy controls (HC) using the MxA-EIA. IFN scores were determined from whole blood gene expression of interferon-stimulated genes IFI44, IFI44L, IFIT1, IFIT3, and MxA by RT-PCR.

Results: MxA levels were significantly elevated in patients with SLE and SSc compared to HC and highly correlated to IFN scores (r=0.735 to r=0.854, pc<0.003). MxA-EIA robustly discriminated (AUC=0.938 to AUC=0.991, pc<0.007) between low and high type I IFN activity in SLE and SSc patients with a specificity of 100% and a sensitivity of 87.5 to 94.7%. Patients with autoimmune antibodies against SM, RNP, SSA/Ro, or SSB/La antigens showed higher MxA levels and IFN scores compared to patients without these antibodies.

Conclusion: Intracellular MxA is an easy applicable and clinically relevant biomarker for systemic type I IFN bioactivity in SLE and SSc. MxA-EIA could be used to identify patients eligible for IFN-targeting treatments and potentially to monitor treatment responses.

REFERENCES


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Disclosure of Interests: Erika Huijser: None declared, C.G. van Helden-Meeuwsen: None declared, Noortje Groot: None declared, Iris LA Bodewes: None declared, M. Javad Wahadat: None declared, Marco WJ Schreurs: None declared, Paul LA van Dalee: None declared, Virgil ASH Dalm: None declared, Jan van Laar: None declared, P Martin van Hagen: None declared, Matti Waris: None declared, Sylvia Kamphuis: None declared, Marjan Versnel Grant/research support from: MAV received financial support from Domainex.


SAT0663
SERUM INFLAMMATORY ANGIgenic AND TISSUE REmodelING BIOMARKERS IN PERIPHERAL SPONDYLOARTHRITIS BEFORE AND AFTER IL-17A BLOCKADE

Merlin Kaal1,2, Leonieke van Mens1, Jan Piet van Hamburg1,2, Dominique Baeten1,2, Marleen van de Sande1, Sander Warner1,3,1, Amsterdam UMC, University of Amsterdam, Amsterdam Rheumatology and Immunology Center, Amsterdam, Netherlands; 2Amsterdam UMC, University of Amsterdam, Department of Experimental Immunology, Amsterdam, Netherlands

Background: Spondyloarthritis (SpA) is characterized by extensive angiogenesis, tissue remodeling and inflammation of both the enthesis and the synovial tissue. Several studies have shown a relation between angiogenic/tissue remodeling serum markers and disease progression. Secukinumab, an anti-IL-17A inhibitor, is an effective treatment in SpA, but its effects on serum markers of angiogenesis, tissue remodeling and inflammation are largely unknown.

Objectives: The purpose of this study was to analyze several candidate biomarkers of these processes in patients with SpA treated with anti-IL-17A.

Methods: Serum samples from 20 active peripheral SpA patients that were included in a 12 week open-label trial with secukinumab were analyzed for several markers with luminex technology. Study design and primary results were previously published (1).

Results: Serum levels of IL-6, MMP-3, osteopontin (all P < 0.001), Vascular Endothelial Growth Factor A (VEGF-A), tumour necrosis factor (TNF)-alpha, IL-31, IL-33, S100A8, S100A9 (all P < 0.05) decreased

Disclosure of Interests: None declared