we analyzed data from the study visit with higher disease activity from each patient, applying multivariate linear regression analysis, with PGA as dependent variable/gold-standard. Independent variables tested in the models included items from SLEDAI-2K and continuous variables for swollen joint count, proteinuria, platelet and white blood cells counts. Some features absent from SLEDAI, such as hemolytic anemia, gastrointestinal and cardiopulmonary involvement were added to the model.

To assess correlation validity we performed a Spearman's correlation between the SLE-DAS, PGA and SLEDAI-2K at last follow-up visit. We tested performance of SLEDAI-2K (change ≥ 4) and SLE-DAS to discriminate a clinically meaningful worsening and improvement in SLE disease activity (change in PGA ≥ 0.3) using Receiver Operating Characteristic (ROC) curve analysis. We determined the best cut-offs values of SLE-DAS to detect changes in PGA ≥ 0.3 and calculated the sensitivity, specificity, positive and negative predictive values (PPV, NPV). Statistical significance was set at 0.05.

Results: The final SLE-DAS model included 17 items. The SLE-DAS score at last follow-up visit presented high correlation with PGA ($\rho=0.975$, $p<0.0005$) and SLEDAI-2K ($\rho=0.94$, $p<0.0005$). For improvement in PGA ≥ 0.3 , in ROC analysis a change in SLE-DAS presented a much higher performance [area under curve (AUC)=0.927 (95% CI=0.885–0.969, $p<0.0005$)] than SLEDAI-2K [AUC=0.787 (95% CI=0.718–0.857), $p<0.0005$] (figure 1). For worsening of PGA ≥ 0.3 , change in SLE-DAS and SLEDAI-2K presented an AUC of 0.994 (95% CI=0.988–1.000, $p<0.0005$) and 0.914 (95% CI=0.870–0.959, $p<0.0005$), respectively (figure 1). The optimal discriminative cut-off for either a PGA increase or reduction was change in SLE-DAS ≥ 1.72 (table 1).

Table 1 Performance of SLE-DAS and SLEDAI-2K to detect change in SLE disease activity

	Δ SLE-DAS ≥ 1.72				Δ SLEDAI-2K ≥ 4			
	Sens	Spec	PPV	NPV	Sens	Spec	PPV	NPV
Improvement PGA ≥ 0.3	82.1	96.9	87.3	95.4	44.8	96.5	76.9	87.0
Worsening PGA ≥ 0.3	93.1	97.7	90.0	98.5	46.6	99.6	96.4	89.5

Sens: Sensitivity(%); Spec: Specificity(%); PPV: Positive predictive value(%); NPV: Non predictive value(%).

Figure 1 Receiver operating curve (ROC) comparing the performance of SLE-DAS and SLEDAI-2K to detect a clinical meaningful improvement (A) and worsening (B) in SLE disease activity.

Conclusions: The SLE-DAS presents good construct validity and much higher discriminative power to detect changes in SLE disease activity as compared to SLEDAI-2K. External validation in another SLE cohort is underway.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2018-eular.3161

FRI0642 SEPTIC ARTHRITIS SCREENING WITH A FAST DIAGNOSTIC TOOL USING MID INFRARED SPECTROSCOPY: A MULTI-CENTRIC STUDY

J.-D. Albert¹, M. Le Corvec², A. Martin³, X. Guennoc³, C. David⁴, S. Hoang⁴, C. Guedes⁴, M. Ferreyra⁴, E. Hoppe⁵, B. Legoff⁶, S. Jousse-Joulin⁷, H. Taniel², O. Sire⁸, A. Jolivet-Gougeon⁹, P. Guggenbuhl¹⁰, O. Loreal¹⁰. ¹Rheumatology, CHU de Rennes, ²DIAFIR, RENNES, ³Rheumatology, CH Saint-Brieuc, Saint-Brieuc, ⁴Rheumatology, CH de Bretagne Atlantique, Vannes, ⁵Rheumatology, CHU Angers, Angers, ⁶Rheumatology, CHU Nantes, Nantes, ⁷Rheumatology, CHU de Brest, Brest, ⁸IRDL, FRE CNRS 3744, Vannes, ⁹Microbiology, CHU de Rennes, ¹⁰Institut Numecan, INSERM U1241, Rennes, France

Background: Septic arthritis diagnostic is an emergency which implies a treatment with antibiotics and hospitalization. The diagnosis is based on the cytochemical examination of the synovial fluid (SF), but direct bacteriological examination is insensitive and the result of the culture is obtained only after several days. Therefore, there is still a need for a rapid, simple and reliable method for

the positive diagnosis of septic arthritis. Such method must allow avoiding both unrecognized septic arthritis leading to major functional consequences, and over-diagnosis that will induce unnecessary expensive hospitalization and unjustified treatment with consequences in term of health and social costs.

Mid-infrared (MIR) spectroscopy, that gives a metabolic profiling of biological samples, has been proposed for early and fast diagnosis.

Objectives: The objective of this study was to confirm ⁽¹⁾ the interest of mid-infrared (MIR) spectroscopy to discriminate synovial fluid samples from patients with septic arthritis from other causes of joint effusion.

Methods: Synovial fluids from patients referred for suspected arthropathies were prospectively collected in six hospitals in western France and stored at -80°C. The infrared absorption spectrum was acquired for each of the frozen samples using a chalcogenide fibre sensor. The most informative spectral variables (allowing to discriminate between septic arthritis and non-septic arthritis with reference to cytobiological examination) were selected and then used to develop an algorithm. Non-frozen synovial fluids were also analysed at Rennes University Hospital, the pilot centre, to validate the algorithm.

Results: The cohort consists of synovial fluid samples from patients exhibiting various etiologies. These samples (n=402), by using SF bacteriological analysis and culture and 16S PCR analysis were classified as septic arthritis (n=30) or non septic arthritis (n=372).

On the frozen samples the performances of the algorithm show a sensitivity of 97%, a specificity of 71%, a **VPN of 99%** and a VPP of 21%, the area under the ROC curve (AUROC) was 0.91.

Conclusions: This study confirms the interest of optical fibre infrared spectroscopy for the discrimination between septic and non septic synovial fluids. The high negative predictive value and the very short time (about ten minutes) required to obtain the result makes it possible to quickly rule out an infection diagnosis, which could make it possible to avoid unnecessary hospitalization and antibiotic therapy.

REFERENCE:

1. Albert J-D, et al. Joint Bone Spine 2016;83:318–323.

Disclosure of Interest: J.-D. ALBERT: None declared, M. Le Corvec Employee of: DIAFIR, A. MARTIN: None declared, X. GUENNOC: None declared, C. DAVID: None declared, S. HOANG: None declared, C. GUEDES: None declared, M. FERREYRA: None declared, E. HOPPE: None declared, B. LEGOFF: None declared, S. JOUSSE-JOULIN: None declared, H. TARIEL Shareholder of: DIAFIR, O. SIRE Consultant for: DIAFIR, A. JOLIVET-GOUGEON: None declared, P. GUGGENBUHL: None declared, O. LOREAL Shareholder of: DIAFIR

DOI: 10.1136/annrheumdis-2018-eular.6224

FRI0643 AUTOANTIBODY STATUS IS NOT ASSOCIATED WITH EARLY TREATMENT RESPONSE TO FIRST-LINE METHOTREXATE IN PATIENTS WITH EARLY RHEUMATOID ARTHRITIS

J. S. Dekkers¹, S. A. Bergstra¹, A. Chopra², M. Tikly³, J. E. Fonseca⁴, K. Salomon-Escoto⁵, T. Huizinga⁶, D. van der Woude⁶. ¹Rheumatology, LUMC, Leiden, Netherlands, ²Rheumatology, Centre For Rheumatic Diseases, Pune, India, ³Division Of Rheumatology, University of Witwatersrand, Johannesburg, South Africa, ⁴Rheumatology Research Unit, Lisbon Academic Medical Centre, Lisbon, Portugal, ⁵Department Of Rheumatology, UMass Memorial Medical Center, Massachusetts, United States, ⁶Department Of Rheumatology, LUMC, Leiden, Netherlands

Background: In rheumatoid arthritis (RA), the relationship between autoantibody status and treatment response to methotrexate remains unclear. As methotrexate is the most widely used anti-rheumatic drug in clinical practice, it would be important to know whether the presence of autoantibodies is associated with better treatment response, since patients may benefit from treatment tailored to "autoantibody status".

Objectives: We investigated the relationship between autoantibody status and remission in newly diagnosed RA-patients treated with first-line methotrexate.

Methods: RA-patients initially treated with methotrexate were selected from an international observational database (METEOR). Patients were stratified into autoantibody-positive (rheumatoid factor (RF)- and/or anti-citrullinated-protein antibodies (ACPA)-positive) or -negative (RF- and ACPA- negative). The effect of autoantibody status on the chance of achieving remission within 3 to 6 months was analysed using Cox-proportional hazards regression.

Results: Data from 1826 RA-patients were available for analysis. DAS remission was achieved in 17% (318/1,826). This was similar in autoantibody-positive (17% (282/1629)) and -negative patients (18% (36/197)). Hence, autoantibody positivity was not associated with remission (HR0.89, 95%CI 0.57;1.38). Similar findings were found when stratified for methotrexate monotherapy (HR0.75, 95%CI 0.41;1.37) or combination treatment (HR0.76, 95%CI 0.37;1.54). Good physical