study, adolescents were asked to complete the A-CHAQ and HAQ and their guardians the P-CHAQ. Adolescents were selected if at least two of the questionnaires had been completed simultaneously within the first year following diagnosis.

Fit of the item response models was assessed by comparing model expected item scores with those observed in CAPS for each item (i.e. residuals). An item response model was considered to adequately describe item response behaviour of CAPS patients when the mean of the residuals was $<\pm 5\%$. Agreement of overall questionnaire IRT scores were then compared using limits of agreement (2SD) and intra-class correlations.

Results: Of 303 adolescents, 61% were female and median age at JIA diagnosis was 13 years (range 11 to 17). Raw HAQ scores consistently fell below both CHAQ scores.

IRT model fit in the CAPS population was good, with 1% of item residuals $>\pm 5\%$. When modelled using IRT, the mean differences in overall scores approximated zero, with narrow limits of agreement, at 15 (PCHAQ vs ACHAQ), 12 (PCHAQ vs HAQ) and 10 (ACHAQ vs HAQ), on a 0–100 scale. High intra-class correlations between overall scores were evident (range 0.83 to 0.90). There was therefore high agreement between IRT-modelled scores obtained for different questionnaires. A scale characteristic curve (figure 1) illustrates the relationship between the expected scores for CHAQ and HAQ questionnaires with the latent functional ability variable.

Figure 1 Comparing CHAQ and HAQ scores with latent function.

Conclusions: IRT models for functional ability previously developed in a mixed population of adult and paediatric patients with inflammatory arthritides are applicable to adolescents with JIA in CAPS. IRT scores across CHAQ and HAQ measures had high agreement. IRT scores for functional ability can therefore be used in clinical practice and research to directly compare scores on the CHAQ and HAQ. This will be important as adolescents transfer from paediatric to adult rheumatology.

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FRI0649 SYSTEMIC LEVELS OF TYPE VI COLLAGEN METABOLITES ARE ELEVATED IN RA PATIENTS AND MODULATED BY TREATMENT WITH ANTI-IL6R THERAPY

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Background: Rheumatoid arthritis (RA) is a chronic autoimmune disease characterized by progressive inflammation systemically and local joint deterioration. Chronic inflammation leads to elevated levels of tissue remodeling and release of extracellular matrix (ECM) metabolites into circulation. Type VI collagen (Col-VI) is found at the interface between the interstitial- and the basement membrane where it binds other matrix proteins and support cell-cell interactions. Blood levels of Col-VI metabolites (C6M) have been associated with increased tissue turnover and disease activity in animal models and clinical studies of lung¹ and liver² fibrosis and ankylosing spondylitis³. These studies indicate that systemic levels of C6M are released ubiquitously from many organs and may be modulated by anti-inflammatory treatments. Treatment with the α IL-6 receptor agent Tocilizumab (TCZ) results in decreased ECM remodeling

Objectives: Investigate the modulation of Col-VI metabolites in circulation by TCZ treatment and its association with treatment response.

Methods: Systemic Col-VI metabolism was measured in the LITHE study (n=740), a one year double blind, placebo controlled phase III parallel group study

in patients receiving placebo, 4 mg/kg or 8 mg/kg TCZ in combination with MTX. Col-VI degradation was measured using the C6M assay, measuring a specific MMP generated metabolite at bl, w4 and w16. The odds ratio (OR) of treatment response (ACR20, 50 or 70) at $>$ median decrease was calculated using logistic regression, adjusting for age, sex, BMI, dis. duration (model 1) and treatment (model 2).

Results: TCZ treatment dose dependently reduced of Col-VI metabolites in serum at w4 in both 4 and 8 mg/kg (9% ns and 46% $p<0.0001$) doses compared to placebo and the reduction persisted throughout the study. Patients with a high suppression of Col-VI turnover were more likely to respond to treatment compared to patients with low suppression. In patients with high suppression after 4 weeks the OR and ACR20 response at w16 was 1.6 (95% CI, 1.16–2.20), although this was not significant when adjusting for treatment. The OR of ACR50 was 2.2 (95% CI, 1.507–3.296) and for ACR70 2.6 (95% CI, 1.407–4.631).

Table 1 Association of high/low C6M median % change with ACR response after 16 weeks using logistic regression

Determinant	Model	Outcome		ACR20		ACR50		ACR70	
		OR	p-value	OR	p-value	OR	p-value	OR	p-value
Δ C6M % week 4	Model 1	High	1.596	0.004	2.228	<0.001	2.553	0.002	
		Low	(1.160–2.198)		(1.507–3.296)		(1.407–4.631)		
	Model 2	High	1.319	0.122	1.820	0.005	2.390	0.007	
		Low	(0.929–1.873)		(1.189–2.785)		(1.265–4.517)		

Conclusions: Suppression of Col-VI turnover was significantly associated with a higher level of response to TCZ treatment in RA patients after already 4 weeks. We hypothesize that there is an increased systemic connective tissue turnover in RA and connective tissue metabolites may be used as indicators of treatment response.

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FRI0650 THE DIAGNOSTIC VALUE OF THE AESKULISA PR3 SENSITIVE & AESKULISA MPO IN THE EUVAS-COHORT

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Background: Anti-neutrophil-cytoplasmic-antibodies directed against proteinase-3 (PR3-ANCA) and myeloperoxidase (MPO-ANCA) are serological hallmarks of small vessel vasculitis, particularly granulomatosis with polyangiitis (GPA) and microscopic polyangiitis (MPA). In a recent multicentre European-Vasculitis-Study-Group (EUVAS) evaluation, the performance of IIF was compared to that of various antigen-specific immunoassays.

Objectives: The aim was to evaluate the diagnostic accuracy of the third-generation antigen-specific immunoassays PR3-ANCA (AESKULISA-PR3-sensitive) and MPO-ANCA (AESKULISA-MPO) and to compare these data with the results from the other assay (Orgentec).

Methods: 257 samples from the EUVAS cohort were tested for the presence of ANCA by PR3-ANCA ELISA (AESKULISA-PR3-sensitive) and MPO-ANCA ELISA (AESKULISA-MPO). Newly diagnosed GPA/MPA (n=66) patients and diseased controls (n=191): systemic lupus erythematosus (n=60), systemic sclerosis (n=10), rheumatoid arthritis (n=90), Scleroderma (n=11) and Sjögren's syndrome (n=30) were analyzed.

Results: In AAV patients, ANCAs were detected with both methods in 56 cases; divergent results were obtained in only 1 patient sample. 191 patients with other rheumatic diseases were analyzed and only 13 vs 11 (AESKU/Orgentec) were

positive for ANCA (SLE, sclerosis, RA, RA/RV). This study shows that the PR3- and MPO-ANCA ELISA are highly specific (93.2%/94.2%) and sensitive (85.9%/85.9%) in the detection of ANCA to identify AAV or conditions known to be associated ANCA.

Conclusions: Our comparison of PR3- and MPO-ANCA ELISAs showed (i) a high diagnostic performance of these PR3- and MPO-ANCA ELISAs to discriminate AAV from disease controls. (ii) very good correlation between the other methods tested. In conclusion, these novel assays can be used as screening method for detection of ANCA-associated diseases.

Disclosure of Interest: None declared

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FRI0651 QUANTITATIVE CHEST CT PREDICTS 8-YEARS-MORTALITY AND COMORBIDITY IN SYSTEMIC SCLEROSIS

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Background: Interstitial Lung Disease (ILD) is the main cause of death in Systemic Sclerosis (SSc). Serious lung involvement increase the hospitalization rate and sometimes oxygen therapy is required.

An prompt treatment in ILD-SSc patients is essential, but nowadays there is not a feasible method to identify patients with poor prognosis.

Although chest Computed Tomography (CT) is the gold standard to detect ILD, there is no standardized assessment of its severity. Quantitative CT (QCT) is an innovative and operator independent method to assess ILD-SSc extent and severity. An increasing number of evidences confirm that QCT is extremely useful for detecting SSc-ILD with the worst prognosis. However is not well established if QCT can predict death or comorbidity associated to ILD.

Objectives: The main aim of this study is to verify if QCT predict 8-years mortality or clinical worsening (i.e. hospitalization for respiratory complications or chronic oxygen therapy) in SSc.

Methods: Consecutive SSc patients (according to ACR/EULAR classification criteria) from ten different centers underwent a chest CT. Their clinical history was carefully recorded in the following 96 months. A rheumatologist post-analyzed every CT with an open source DICOM viewer in order to obtain QCT indexes. Patients were clustered in two subgroups: according to QCT indexes' cutoff previously found (see Ariani et al., 2017). The survival time of each patient was considered the time interval between the CT date and death, hospitalization related to lung worsening, beginning of chronic oxygen therapy or last medical examination

Results: We enrolled 342 patients; during the 8-years follow-up 15.5% (53/342) died and 4.4% (15/342) had a clinical worsening. The Kaplan-Meier survival analysis demonstrates a worse survival in patients with QCT indexes above or below the previously observed cutoffs. ($p < 0.01$). In particular the QCT index cutoff which the best performance was total lung kurtosis (tKurt) equal to 4.89 ($p < 0.0001$).

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The QCT indexes' cutoffs previously found (see Ariani, et al., 2017) identify the SSc-ILD subjects with an high risk of 8-years mortality and comorbidity. These findings suggest that QCT could become a pivotal assessment in SSc management because its role in identifying patients with poor prognosis and who deserve an early aggressive treatment.

Disclosure of Interest: None declared

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FRI0652 THE DEVELOPMENT AND VALIDATION OF FAMILIAL MEDITERRANEAN FEVER QUALITY OF LIFE SCALE (FMF-QOL)

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Background: Quality of life (QoL) was negatively affected in FMF patients. A QoL scale specific to FMF is not existing in the literature.

Objectives: To develop valid and reliable quality of life scale in familial Mediterranean fever (FMF).

Methods: The psychometric method was used to develop the FMF-QoL. In the first step, the question pool was formed by using existing QoL scales in the literature. Outpatients with FMF according to Livneh criteria were recruited. After patients' interviews, some identical and irrelevant questions eliminated and new ones were added by an expert committee. Cognitive debriefing interviews concerning QoL were done with another 20 FMF patients. Minor changes (few words) after these interviews were made. In the second step, the preFMF-QoL with 101 questions was formed and it was filled out by FMF patients. Confirmatory factor analysis (CFA) by varimax rotation, assessment of data' skewness and kurtosis, evaluation of invalid questions and participants were performed. After this, the internal consistency with Cronbach alpha was calculated. The face, content and construct validities were assessed. Convergent validity which was the relation of the FMF-QoL with functional parameters (Europe Health Impact Scale (EURO-HIS), Short Form 36 (SF36), Beck Depression Inventory for Primary Care (BDI-PC), Jenkins Sleep Scale (JSS), Health Assessment Questionnaire (HAQ) and the discriminant validity which was the relation of the FMF-QoL with nonfunctional parameters such as demographic and clinical characteristics were analyzed. The Mann Whitney U test, Kruskal-Wallis test and Spearman correlation coefficient (rho) were used to compare quantitative variables.

Results: In our study, the FMF-QoL was applied to 125 FMF patients however 123 (84 women) patients were designed to statistical analysis. It has been determined by the expert committee that the face and content validity of the FMF-QoL was good. According to the factor analysis the FMF-QoL were represented by 4 factor groups (eigenvalues >1) which were physical impact, social and recreational impact, psychological impact, and sleep impact factors. All question's factor loadings after Varimax rotation were bigger than 0.5 and the cumulative variance of the scale was 68.11%. The strongest correlation of the FMF-QoL was found with other QoL scales like EUROHIS (rho: -0.64, $p < 0.01$) and SF36-physical functioning subscale (rho: -0.63, $p < 0.01$). The correlations between the FMF-QoL and other functional parameters were found to be moderate [BDI-PC (rho: 0.46, $p < 0.01$), JSS (rho: 0.44, $p < 0.01$), HAQ (rho: 0.44, $p < 0.01$)]. This shows that the FMF-QoL has good convergent validity. In the discriminative validity, most of the parameters had not significant correlation with the FMF-QoL. Only the number of attacks in the previous year, age and education level were correlated moderately with the FMF-QoL. This shows the FMF-QoL has discriminative validity.

Conclusions: The FMF-QoL scale was developed with psychometric method. It is a valid and reliable disease specific scale which has 20 questions with 4 factors. It is already a practical, not time consuming that can be used in the clinical follow-up and the treatment evaluation.

Disclosure of Interest: None declared

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FRI0653 VALIDITY OF POLYMYALGIA RHEUMATICA DIAGNOSES, AND CLASSIFICATION CRITERIA, IN PRIMARY HEALTH CARE

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Background: Polymyalgia rheumatica (PMR) is an inflammatory disorder that mainly affects elderly women, and usually is diagnosed in primary health care (PHC). A number of classification criteria have been proposed, most recently the American College of Rheumatology (ACR)/ European League Against Rheumatism (EULAR) criteria from 2012 (1). The ACR/EULAR criteria were developed in a cohort of patients recruited from rheumatology clinics.

Objectives: To examine the validity of PMR diagnoses in primary care, and to validate the use of classification criteria for PMR in a retrospective survey of a PHC cohort.

Methods: Patients were recruited from two PHC centers. All patients with a registered diagnosis of PMR between 2000 and 2013 in the patient administrative system were identified. The electronic case records, including hospital records,