THU0380

DIAGNOSTIC UTILITY OF ANTI-DFS-70 AUTOANTIBODIES IN A UNIVERSITY RHEUMATOLOGY CENTRE

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Background: The detection of antinuclear autoantibodies by immunofluorescence (ANA-IFT) supports the diagnosis of many different autoimmune and rheumatological diseases (ARE). In combination with the detection of specific autoantibodies against known extracted nuclear antigens (ENA) ANAs have high diagnostic sensitivity and specificity. However, positive ANA-IFT may also occur in disease states not related to ARE and even in healthy individuals. Especially in the latter group this may lead to unnecessary and repeated hospital visits, as well as avoidable diagnostic and therapeutic interventions. Anti-DFS70 autoantibodies were introduced as a biomarker for the exclusion of ARE in ANA-IFT +patients without additional ENAs and non-specific clinical history.

Objectives: To evaluate if the diagnostic pathway for suspected or established ARE patients in our centre benefits from the addition of anti-DFS70 autoantibodies to an existing ENA test profile.

Methods: Serum from patients was tested for anti-DFS70 autoantibodies by the ANA-Profil 3 plus DFS70 line blot (Euroimmun, Lübeck Germany).

Results: In 2017 the Freiburg university rheumatology centre tested 671 patients, referred to for diagnosis or follow up of ARE, for anti-DFS70 and 126 patients were found positive. Descriptive statistics of the anti-DFS70 positive vs negative cohorts are summarised in table 1. Of the 126 anti-DFS70 positive patients, 53 (42%) had one or more additional ENAs positively tested (4 snRNP/Sm, 1 Sm, 15 SS-A/Ro, 15 Ro-52, 2 SS-B/La, 4 Scl-70, 8 PM-Scl, 2 PM-Scl75, 1 SRP, 2 Ku, 1 Jo-1, 4 Centromer, 2 PCNA, 2 Nucleosomes, 9 Histones, 1 ribos-P-Prot, 2 AMA-M2, 6 ds-DNA) and 3 (2%) patients had anti-DFS70 in conjunction with anti CCP autoantibodies. 70 (56%) patients were tested single positive for anti-DFS70. 81 (64%) of anti-DFS70 positive patients either had an established diagnosis of ARE or were newly diagnosed with ARE based on clinical criteria and laboratory results. The majority of these patients had additional ENAs or other autoantibodies tested positive, as described above. A diagnosis of ARE was excluded or revised with help of the anti-DFS70 result in 45 (36%) patients, all of these were anti-DFS70 positive only. In 10 of these patients (20%) preexisting therapies were discontinued (9 Hydroxychloroquin, 1 MTX/sulfasalazine).

	Anti-DFS70 positive (n=126)	Anti-DFS70 negative (n=544)	p-value
Male, n (%)	19 (15.1)	111 (20.4)	n.s.
Mean age, years (min-max)	47 (18–77)	52 (14–88)	n.s.
DFS70 +++, n (%)	82 (65.1)	NA	NA
DFS70 ++, n (%)	13 (10.3)	NA	NA
DFS70 +, n (%)	10 (7.9)	NA	NA
DFS70 (+), n (%)	21 (16.7)	NA	NA

Abstract THU0380 – Table 1. Descriptive statistics of the patient cohorts tested for anti-DFS70-antibodies

Conclusions: We found a high added diagnostical value of anti-DFS70 autoantibodies testing, since they were helpful to rule out or revise a previously suspected diagnosis of ARE in more than a third all patients tested anti-DFS70 positive at our centre. However, patients referred to a university rheumatology centre are a highly selected cohort and have a higher probability being finally diagnosed with ARE, and thus consideration of clinical criteria and thorough testing for additional autoantibodies is recommended in such a setting since also many patients with confirmed ARE will test positive for anti-DFS70.

Disclosure of Interest: None declared

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THU0381

HIGH LEVELS OF CIRCULATING TYPE I, II AND III INTERFERONS DEFINE DISTINCT PATIENT SUBSETS WITH ACTIVE SYSTEMIC LUPUS ERYTHEMATOSUS (SLE)

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Background: Interferons (IFN) play a major role in SLE pathogenesis.¹ IFNs type I (predominately IFN- α s) are of major importance,² but IFN type II (IFN- γ) and IFNs type III (λ) have also important roles.^{3,4} How the levels of circulating IFNs type I, type II and type III relate to each other, and if they associate with any particular SLE disease manifestations is not known.

Objectives: We investigated serum levels of type I, type II, and type III IFNs and explored how these measurements relate to each other and to specific organ manifestations in patients with SLE.

Methods: We studied 497 well-characterised SLE patients and 322 controls. Functional type I IFN-activity (IFN-activity) was measured by WISH cell assay. IFN- α and IFN- λ 1 were measured by ELISA, and IFN- γ by MSD 30-plex assay. High IFN-activity/levels were defined as value over 3rd quartile of the measurement.

Results: SLE patients had higher levels of all investigated IFNs. IFN-activity correlated with IFN- α and IFN- γ . High functional IFN-activity associated with active SLE in most domains: weight loss, fatigue, fever, rash, lymphadenopathy, arthritis and nephritis. The IFN- γ high group had active disease with higher rates of nephritis, arthritis, leuko-, lymphopenia and Sm, SmRNP, RNP68, Ro52 and Ro60 autoantibodies. A higher proportion of the IFN- α high group had active rash, lymphadenopathy, Ro52 and La autoantibodies, while rates of antiphospholipid antibodies/syndrome, vascular events and renal affection were lower. High IFN- λ 1 associated with anti-nucleosome autoantibodies and lymphopenia.

Conclusions: High type I IFN functional activity is associated with active SLE in the majority domains. A severe SLE phenotype, including active nephritis, arthritis and anti-Sm/SmRNP autoantibodies is associated with high IFN- γ , while rash and a benign cardiovascular profile are linked to high serum IFN- α . Isolated increase in IFN- λ 1 is only coupled to lymphopenia and antinucleosome antibodies. Our findings demonstrate that several IFNs can be elevated at the same time in SLE and the importance of IFN- γ has so far been underscored. Sub-setting of SLE patients might be important when planning future clinical trials.

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THU0382

FATIGUE IN CHINESE PATIENTS WITH SYSTEMIC LUPUS ERYTHEMATOSUS: CONTRIBUTING FACTORS AND EFFECTS ON THE QUALITY OF LIFE

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Background: Fatigue is a very common symptom in Systemic Lupus Erythematosus (SLE), affecting more than 90% of patients^[1]. Fatigue can lead to a decline in the quality of life^[2]. Fatigue in SLE patients is associated with adverse demographic, clinical, and psychological characteristics^[3,4]. However, there is no systematic study of SLE fatigue in China.

Objectives: This cross-sectional study aims to evaluate the contributors of fatigue and the effects of fatigue on the quality of life in Chinese SLE patients.

Methods: A self-report survey was administered to 119 SLE patients and 105 healthy individuals using the Fatigue Severity Scale(FSS) to assess the severity of fatigue. SLE patients completed the Systemic Lupus Erythematosus Disease Activity Index (SLEDAI) for disease activity, the Hospital Anxiety and Depression Scale(HADS) for anxiety and depression, the Pittsburgh Sleep Quality Index (PSQI) for sleep quality and the Short Form 36 health survey for the quality of life. Meanwhile, healthy individuals completed the Hospital Anxiety and Depression Scale(HADS) and the Pittsburgh Sleep Quality Index (PSQI). We used independent samples t-tests, Chi square analysis and logistic regression modelling to analyse these data.

Results: Our results found that the FSS score of patients with SLE was higher than that of the controls (4.33 ± 1.66 versus 3.41 ± 1.39 ; $p < 0.001$). The SLE patients were significantly different from the control group in terms of anxiety, depression and quality of life. There were significant correlations among course of disease, anxiety, depression, subjective sleep quality, sleep disorders and fatigue in SLE patients. Meanwhile, logistic regression models identified depression and

sleep disorders as predictors of fatigue. In SLE patients, fatigued patients had lower quality of life than those who were non-fatigued.

Conclusions: This is the first known evaluation of the contributors of fatigue and the effects of fatigue on SLE patients' quality of life in China. The majority of Chinese SLE patients suffer from fatigue, which significantly impairs their quality of life. The results emphasise the need for holistic assessment and targeted intervention/management of SLE patients to relieve the symptoms of fatigue and finally improve their quality of life.

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THU0383

PERFORMANCE OF MUSCULOSKELETAL INVOLVEMENT OF SYSTEMIC LUPUS ERYTHEMATOSIS: AN ULTRASOUND STUDY IN 114 PATIENTS

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Background: Joints are commonly involved in systemic lupus erythematosus (SLE). Ultrasound (US) has been widely used in rheumatoid arthritis (RA), however rarely applied and studied in SLE.

Objectives: To investigate the ultrasonic changes of the symptomatic joints and their correlations with clinical manifestations in SLE patients.

Methods: 114 SLE patients who complained of arthralgia or arthritis from May 2014 to Aug 2017 and 15 Rhupus patients due to overlapping with RA were recruited for ultrasound evaluation. Ultrasound scan of the symptomatic joint areas was completed. The correlation between ultrasonographic changes and clinical characteristics was analysed. Besides that, US changes of bilateral wrists and hands of Rhupus patients were compared with those of the SLE patients.

Results: In a total of 1866 joints scanned, synovial hyperplasia, tenosynovitis, erosion and osteophytes were all observed. Synovial hyperplasia was more often observed in knees in 28.6% patients (12/42), ankles in 25% patients (7/28), wrists in 23.3% patients (23/69) and elbows in 20% patients (5/25). Tenosynovitis and erosion were most commonly found in shoulders in 35% (7/20) and 65% (13/20) patients. Osteophytes were more common in proximal interphalangeal (PIP) joints, elbows and knees. Among 69 patients with 22 joints (bilateral wrists and hands) scanned, synovial hyperplasia was observed in 25 patients (36.2%) and erosion in 22 patients (31.8%). The agreement between synovial hyperplasia and swollen joints in PIP was fair ($\kappa=0.633$, $p<0.01$), however poor in wrists ($\kappa=0.089$, $p=0.584$). 18.4% patients with synovial hyperplasia had no tenderness or swollen clinically, while 15.7% patients with tenderness or swollen had no synovial hyperplasia on ultrasound. No correlation was found between ultrasound changes with SLE disease activity index. Both synovial hyperplasia and erosion were more common in Rhupus patients (73.3% vs. 36.2%, $p=0.08$; 66.7% vs. 26.0%, $p=0.03$) with significantly higher GS score (7.4 ± 6.4 vs. 1.6 ± 4.1 , $p=0.04$) than SLE alone patients.

Conclusions: Variety of changes can be observed by ultrasound at different joints in SLE patients. The ultrasonographic changes and clinical manifestations did not always correspond to each other. Synovial hyperplasia and erosion was more common in Rhupus patients.

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THU0384

SALIVARY GLAND ULTRASONOGRAPHY AND STIMULATED SALIVARY FLOW CORRELATED WITH SALIVARY GLAND BIOPSY AMONG PATIENTS WITH SJÖGREN SYNDROME AND SICCA SYMPTOMS: EXPERIENCE FROM A SINGLE MEDICAL CENTRE IN TAIWAN

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Background: Sjögren's syndrome is an autoimmune disease that involves several organs. In the latest classification criteria, salivary minor gland is one of the major factor contributing to the diagnosis. Ultrasonography is a non-invasive, easy accessible tool in evaluation the contour and structure of salivary glands, which have been shown to have efficacy in monitoring the disease status of Sjögren's syndrome as well as in diagnosis the disease. Otherwise, salivary flow rate is another component of classification criteria, and its association with disease activity remains to be elucidated.

Objectives: To investigate the efficacy of salivary gland ultrasonography and salivary flow rate in patients with Sjögren's syndrome and Sicca symptoms.

Methods: Total 97 patients of primary or secondary Sjögren's syndrome, and patients with sicca symptoms were enrolled. Ultrasonography was performed at parotid and submandibular glands with 13–16MHz linear probe. Each gland was scored from 0 to 4. Minor salivary gland biopsy results were examined by pathologist with Chisholm-Mason grade. Unstimulated salivary flow rate was recorded first, and stimulated salivary flow rate was tested after 5 min of sugar-free chewing gum stimulation. Patients' symptoms were recorded by ESSPRI questionnaires.

Results: Total 56 primary Sjögren's Syndrome, 10 secondary Sjögren's Syndrome, and 31 patients with sicca symptoms were enrolled. Significant correlations were noted between unstimulated salivary flow rate and minor gland biopsy ($p=0.029$), stimulated salivary flow rate and biopsy ($p=0.006$), salivary gland ultrasonography and minor gland biopsy ($p<0.001$), and minor gland biopsy with serum anti-SSB (La) level ($p=0.009$). The correlations between minor gland biopsy and serum anti-SSA (Ro) level was not significant. The stimulated salivary flow rate also correlated with self-reported dryness in ESSPRI questionnaires ($p=0.018$). The salivary gland ultrasonography also correlated with ESSPRI ($p<0.001$) and the three factors in ESSPRI (dryness, $p<0.001$; pain, $p=0.039$; fatigue, $p=0.002$).

Conclusions: Both salivary gland ultrasonography and salivary flow rate correlated with the severity of salivary minor gland biopsy. The stimulated salivary flow rate had better correlations with the biopsy result than unstimulated flow, and it also correlated with patients' self-reported dryness symptoms. Salivary gland ultrasonography had correlations with symptoms of patient. These non-invasive methods may play roles in evaluation of the disease activity.

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THU0385

URINARY INFLAMMATORY CELLS REFLECT HISTOPATHOLOGICAL KIDNEY INJURY IN PATIENTS WITH LUPUS NEPHRITIS

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Background: Lupus nephritis (LN) is one of the common manifestations of systemic lupus erythematosus (SLE), and is considered to be a very important factor influencing the course of the disease. Although kidney biopsy is the gold standard for defining the histopathologic class of LN, it is an invasive procedure sometimes associated with a risk of bleeding and thrombotic events; furthermore, repeated biopsies are not always applicable in clinical practice. We have already reported that, in patients with glomerulonephritis, inflammatory cells such as T cells and macrophages appear in the urine when there are accompanying signs of active cellular infiltration such as cellular crescent formation and diffuse interstitial cell infiltration, but not when active inflammatory lesions are absent.

Objectives: To assess the utility of urinary inflammatory cell analysis in patients with LN by examining the correlations between the numbers of urinary inflammatory cells and renal histopathological findings.