

had active disease. CDUS findings were: synovial proliferation: grade 1: 27.4%, grade 2: 54.7%, grade 3: 11.6%; vascularity: grade 1: 41.1%, grade 2: 32.6% and grade 3: 9.5%. Summary findings of QUS were: CF(IS): 8.6 ± 10.63 (median 4.4), CF(total): 9.9 ± 11 (median 5.2), median N(IS): 3 (0–26) and mean N(ES): 1.2 (0–19). Cohen's kappa for synovial proliferation was 0.402 ($p < 0.001$) and vascularity was 0.605 ($p < 0.001$). Intraclass correlation (ICC(1,2)) for CF(IS) was 0.996 (95% confidence interval (CI): 0.994–0.997) and ICC(1,2) for CF(total) was 0.995 (95% CI: 0.993–0.997). CF(IS) was correlated with SJC ($r = 0.22$, $p = 0.029$), TJC ($r = 0.39$, $p < 0.001$), PGA ($r = 0.5$, $p < 0.001$), EGA ($r = 0.583$, $p < 0.001$) and DAS28 ($r = 0.47$, $p < 0.001$); correlations for CF (total) were: SJC ($r = 0.25$, $p = 0.013$), TJC ($r = 0.41$, $p < 0.001$), PGA ($r = 0.525$, $p < 0.001$), EGA ($r = 0.515$, $p < 0.001$) and DAS28 ($r = 0.5$, $p < 0.001$). Significant correlations were also observed for N(IS) with SJC ($r = 0.282$, $p = 0.006$), TJC ($r = 0.411$, $p < 0.001$), PGA ($r = 0.48$, $p < 0.001$), EGA ($r = 0.514$, $p < 0.001$) and DAS28 ($r = 0.467$, $p < 0.001$). Spearman rank correlations of CDUS vascularity were: SJC ($r = 0.26$, $p = 0.01$), TJC ($r = 0.292$, $p = 0.004$), PGA ($r = 0.26$, $p = 0.012$), EGA ($r = 0.168$, $p = 0.103$) and DAS28 ($r = 0.275$, $p = 0.007$). Spearman rank correlations of CF(IS), CF(total) and N(IS) with CDUS vascularity were 0.828, 0.864 and 0.689 respectively ($p < 0.001$). Cut-off values for CF(IS), CF(total) and N(IS) for distinguishing active RA from RA in remission were 4.78 (AUC: 0.82, 95% CI: 0.73–0.9), 5.75 (AUC: 0.89, 95% CI: 0.69–0.88) and 2.5 (AUC: 0.77, 95% CI: 0.68–0.86) respectively. There were 40 patients with CDUS vascularity ≥ 2 among which 62.5% (25/40) had active disease. In this group only CF(total) > 5.75 could distinguish between patients with active disease from disease in remission (100% (25/25) vs., 80% (12/25), $p = 0.046$).

Conclusions: CF(IS) and CF(total) had excellent inter-rater reliability and construct validity. Simple quantitative cutoff values could distinguish between active RA from remission.

Disclosure of Interest: None declared

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AB1055 LEUKOCYTE ESTERASE REAGENT STRIPS FOR RAPID DIAGNOSIS OF INFLAMMATORY SYNOVIAL FLUID

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Background: The analysis of synovial fluid is an important tool for diagnosing joint disease. When synovial fluid is removed, the white cell count (WCC) decreases with time, and an inflammatory liquid could become a false non-inflammatory specimen. Reagent strip testing of urine is a valid tool for the diagnosis of urinary tract infection, via the detection of leukocyte esterase activity. It has been used for the analysis of others body fluids. Synovial fluid test at the site of arthrocentesis using reagent strips could have potential benefits as a screening tool.

Objectives: To evaluate the performance of leukocyte esterase reagent strips for diagnosis of inflammatory synovial fluid.

Methods: Prospective single center study. We analyzed synovial fluids samples collected from patients in a tertiary university Hospital (November 2015- December 2016). Synovial fluid samples were tested within 1 hour after collection. We analyzed: The presence of leukocyte esterase using the leukocyte esterase reagent strips test (originally designed for urine test, URI-Clip Test, Menarini Diagnostics). It was recorded semi quantitatively: negative, 1+ (> 25 WBC/uL), 2+ (> 75 WBC/uL) or 3+ (> 500 WBC/uL) by comparison with a standard color chart found on the container's label. The WCC, formula, glucose level. The WCC was measured by manual leukocyte counting, using saline as diluents. Cultures were also collected. We consider + if leukocyte esterase pad was more or equal than 1+ positive. The cut-off for the WCC (> 2000 cells/mm³) was used to differentiate between inflammatory and non-inflammatory specimens. We compared the WCC (reference standard diagnostic test) with the presence of leukocyte esterase using the leukocyte esterase reagent. Sensitivity (Se), specificity (Sp), PPV, NPV were determined. P-value smaller than 0.05 were considered significant.

Results: During the study period, 125 joint fluid specimens were analyzed: 56 (44.8%) mechanical and 69 (55.2%) inflammatory. Of the mechanical fluids 33 (58.9%) were negative by leukocyte esterase reagent and of the inflammatory fluids 67 (97.1%) were positive. The Se and Sp of leukocyte esterase reagent was 97.1% and 58.9% respectively. The PPV was 74.4% and NPV was 94.3%. The 2 false-negative results (negative by leukocyte esterase reagent but more than 2000 WBC/mm³), showed a predominance of mononuclears ($\geq 91\%$), the median WCC was 2 775/mm and median neutrophil percentage was 8.5%. For inflammatory fluids: semi-quantitative results (negative, 1+, 2+ and 3+) were significantly different regarding the main leukocyte, neutrophil and lymphocyte count (table).

	Negative	1+	2+	3+	p value
Total cell (cell/mm ³)	3025	18272.9	10553.5	56494.2	<0.0001
Leukocyte (cell/mm ³)	2775	12907.1	8528.8	30870.2	<0.0001
Lymphocyte (%)	91.5	50.4	21.61	6.4	<0.0001
Neutrophil (%)	8.5	49.6	83.7	91.7	<0.0001

Conclusions: Our results demonstrate that leukocyte esterase reagent strips are a rapid, cheap, and sensitive tool to identify inflammatory synovial fluid. Leukocyte

esterase reagent strips had an excellent Se but a poor Sp, it could be used as a screening tool in primary care practice. A positive result may indicate an inflammatory process, then the patient should be referred to a rheumatologist.

Disclosure of Interest: None declared

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AB1056 RADIOGRAPHIC ANALYSIS OF METATARSUS PRIMUS ELEVATUS IN PATIENTS WITH RHEUMATOID FOREFOOT DEFORMITIES

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Background: Metatarsus primus elevatus involves dorsal elevation of the first metatarsal relative to the lesser metatarsals. The role of metatarsus primus elevatus in rheumatoid forefoot deformity is yet to be elucidated. We hypothesize that metatarsus primus elevatus can be attributed to a different pathomechanism than typical rheumatoid forefoot deformities such as hallux valgus, splay foot, and flat foot.

Objectives: To clarify the radiographic characteristics of metatarsus primus elevatus in patients with rheumatoid forefoot deformities.

Methods: We retrospectively reviewed standing anteroposterior and lateral radiographs of 51 feet (37 patients; mean age 65.7 ± 7.1 years) before toeplasty due to metatarsalgia at our hospital. The elevation of the first metatarsal relative to the second metatarsal (MPE), the hallux valgus angle (HVA), the intermetatarsal angle (IMA), talar pitch, and calcaneal pitch were measured. For statistical analyses, the Mann-Whitney U test was used.

Results: Median MPE was 1.7 mm (interquartile range: 0.7–4.5 mm). We compared the group with MPE > 5 mm (N=12 feet) to the group with MPE ≤ 5 mm (N=39 feet). The group with higher MPE was significantly younger ($p = 0.011$). There was no significant difference in HVA between the two groups ($p = 0.068$), although IMA was significantly smaller in the group with higher MPE ($p = 0.033$). In the group with higher MPE, calcaneal pitch was greater ($p < 0.001$) and talar pitch was smaller ($p = 0.016$).

Conclusions: In patients with metatarsus primus elevatus, other rheumatoid forefoot deformities such as spray foot and flat foot were not observed. There was a wide range of hallux valgus severity. Metatarsus primus elevatus may be attributed to greater hindfoot calcaneal pitch.

Disclosure of Interest: None declared

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AB1057 MULTIDISCIPLINARY APPROACH FOR DIAGNOSING CONNECTIVE TISSUE DISEASE-RELATED LUNG DISEASE: IS IT USEFUL FOR RHEUMATOLOGISTS?

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Background: Many patients with idiopathic interstitial pneumonia (IP) have certain clinical, serological and/or pulmonary morphologic features suggesting an underlying autoimmune disease (AD), but without meeting established criteria for connective tissue disease (CTD), a situation labelled as "IP with autoimmune features" (IPAF)¹. To identify an underlying aetiology is important because it may impact on treatment and prognosis, and could be optimised by multidisciplinary approach.

Objectives: 1. To identify prevalence of IPAF in routine practice. 2. To determine the value of lung biopsy to diagnose underlying AD. 3. To describe the course of IPAF.

Methods: Observational, longitudinal retrospective study in a tertiary hospital specific outpatient clinic for IP patients with cough and dyspnea as dominant symptoms requiring co-evaluation by rheumatologists in 2010–2016. Variables included: clinical, serologic and morphological findings by High-Resolution Computed Tomography of lungs assessed by 2011 current guidelines² and open lung biopsy. Statistical analysis: SPSS 17.0.

Results: Of 410 patients evaluated for IP, 93 had rheumatologist assessment, 70 F (75.3%), mean age at diagnosis 62.6 years (SD12.13), of whose 48 had no previous diagnosis. Mean follow-up 3.54 (SD2.77) years in undiagnosed patients. The most frequent radiological patterns were: inconsistent with usual interstitial pneumonia (UIP) (67.7%), UIP (22.6%), Possible UIP (4.3%), others (4.3%). Lung biopsy was performed in 15 patients (16%), 11 without previous diagnosis. Histopathology patterns: 8 non-specific interstitial pneumonia (NSIP) in whom final rheumatologic clinical diagnosis was IPAF in 6 and UCTD in 2; 1 UIP (Sjögren); 1 vasculitis (p-ANCA) and 1 lymphoid interstitial pneumonia (LIP) corresponding to IPAF. We found lymphoid aggregates in one patient diagnosed as an IPAF. Overall new diagnostics were: IPAF 43.8%, UCTD 4.2%, CTD 52.1%. 14/93 (15%) patients died, of whom 6 had IPAF (43%).

Conclusions: 1. Of patients with IP referred for rheumatologist assessment, 31% has no established CTD, with IPAF as clinical diagnosis in 24.7% of overall patients. 2. Surgical lung biopsy allowed to diagnose AD in 23% of unlabelled

patients. 3. After a follow-up time of 3.5 years, 43% of patients that died had been diagnosed as a IPAF.

References:

- [1] Fischer A, et al. *Er Respir J* 2015.
[2] Raghu G, et al. *Am J Respir Crit Care Med* 2011.

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AB1058 SENSITIVE DETECTION OF DYNAMIC CHANGES OF BONE EROSIONS IN INFLAMMATORY ARTHRITIS BY MUSCULOSKELETAL ULTRASOUND: A COMPARATIVE ANALYSIS WITH HIGH-RESOLUTION PERIPHERAL QUANTITATIVE COMPUTED TOMOGRAPHY

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Background: Bone erosion is a hallmark of inflammatory joint diseases. Its meticulous detection is highly important for correct diagnosis and monitoring of therapy response. Earlier studies showed that musculoskeletal ultrasound (MSUS) has a higher sensitivity than conventional radiography with regards to detection of bone erosions (1) making MSUS more and more popular. The OMERACT ultrasound working group is currently standardizing and validating MSUS as an imaging outcome tool.

Objectives: To investigate the ability of MSUS to sensitively and specifically detect bone erosions in a longitudinal setting using HR-pQCT as a gold standard.

Methods: This is a sequel study to our 2011 cross-sectional comparative analysis on MSUS and HR-pQCT (2). 4/6 healthy individuals, 6/6 psoriatic arthritis patients and of 10/14 rheumatoid arthritis patients were available for follow-up and received an MSUS and an HR-pQCT scan of the clinically dominant hand. Bone erosions at the radial, palmar, and dorsal sites of the second metacarpophalangeal (MCP) joint, as well as the palmar and dorsal sites of the third and fourth MCP joints were assessed for prevalence and severity in MSUS and by HR-pQCT. Afterwards, data were compared to the 2011-dataset. MSUS was graded as described earlier (2).

Results: Datasets without follow-up from the baseline cohort were eliminated. Sensitivity of MSUS in comparison to HR-pQCT regarding correct detection of erosions was 95% and specificity was 75%. For this analysis, grade 1 lesions were included. At follow-up sensitivity was 86% and specificity 79%. At follow-up, 36 MSUS-lesions were no longer detectable in MSUS; 21/36 were false-positive lesions at baseline. Only one false-positive lesion was detected at both time points. One new lesion was detected by MSUS and confirmed by HR-pQCT. Overall severity of bone erosions regressed in MSUS; these findings were confirmed by HR-pQCT ($p=0.04$).

Conclusions: This is the first study on change of bone erosions over time comparing MSUS and HR-pQCT. MSUS was confirmed being a sensitive imaging tool able to detect changes of erosions over time. Thus, it may be an adept tool to monitor treatment response in inflammatory joint diseases. Correct identification of bone erosions and differentiation from physiological vessel channels requires knowledge of predilection sites of erosions and physiological cortical breaks; this might aid to further increase the diagnostic value of MSUS.

References:

- [1] Wakefield RJ et al. The value of sonography in the detection of bone erosions in patients with rheumatoid arthritis: a comparison with conventional radiography. *Arthritis Rheum.* 2000.
[2] Finzel S et al. A detailed comparative study of high-resolution ultrasound and micro-computed tomography for detection of arthritic bone erosions. *Arthritis Rheum.* 2011.

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AB1059 THE PREVALENCE OF DENSE FINE SPECKLED PATTERN IN ROUTINE SCREENING FOR SYSTEMIC AUTOIMMUNE DISEASES USING INDIRECT IMMUNOFLUORESCENCE-ANTINUCLEAR ANTIBODY TEST

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Background: The nuclear dense fine speckled (DFS) pattern is one of the most commonly observed finding in indirect immunofluorescence-antinuclear antibody (IIF-ANA) assay on HEp-2 cells. Unlike other ANA, DFS pattern is not prevalent in ANA-associated rheumatic diseases (AARD). The antigen was initially named DFS70 (70kD protein) according to the IIF pattern and later known as the lens epithelium-derived growth factor p75 (LEDGF/p75). Autoantibodies showing a DFS pattern have been reported in interstitial cystitis, various chronic inflammatory conditions, autoimmune thyroiditis, atopic dermatitis, cancer, as well as in apparently healthy individuals. Among IIF-ANA tests referred to the

laboratory from the Department of Dermatology, the most common IIF-ANA positive pattern is DFS.

Objectives: To compare the clinical significance of DFS pattern in dermatologic diseases (including alopecia) with other departments.

Methods: Between June and December 2016, IIF-ANA testing using HEp-2 cell line slide (Kallestad; Bio-Rad, USA) was performed on 4,130 samples referred as screening for systemic autoimmune diseases in Kyung Hee University Hospital. The identified patterns in IIF-ANA assays were analyzed according clinical department and diagnosis.

Results: The Department of Dermatology was the most requesting IIF-ANA assay (2579/4130, 62.4%) and the Department of Rheumatology and the remaining departments were 18.1% (749/4130) and 19.5% (802/4130), respectively. The prevalence of IIF-ANA positivity was 10.97% (453/4130) and those of the Department of Dermatology, the Department of Rheumatology, and the remaining departments were 8.5% (219/2579), 15.5% (116/749), and 14.7% (118/802), respectively. The DFS pattern was the most common IIF-ANA positive pattern (173/453, 38.2%) and the prevalence of DFS pattern in the Department of Dermatology, the Department of Rheumatology, and the remaining departments were 48.4% (106/219), 26.7% (31/116), and 30.5% (36/118), respectively.

Among 173 patients with ANA pattern of DFS, 168 patients were reviewed based on their medical chart. The most of patients were from Department of Dermatology and Rheumatology. 101 patients with positive DFS were from Department of Dermatology, the majority of 55 patients were diagnosed with alopecia. 31 patients of department of Rheumatology showed positive ANA pattern of DFS and a great part of patients were diagnosed with rheumatism.

Conclusions: According to previous studies, up to 20% of healthy individuals have been reported to have a positive IIF-ANA test and the DFS pattern has been reported in 33% of ANA positive healthy individuals, but not in ANA positive systemic autoimmune diseases. In this study the prevalence of DFS pattern of ANA positivity in patients with dermatologic diseases including alopecia was similar with prevalence reported in healthy individuals. The patients with alopecia appear to show higher prevalence of positive ANA pattern of DFS than other patients with dermatologic disorders. This study was performed with routinely IIF-ANA requested patients to screen for systemic autoimmune diseases. Therefore, further evaluations comparing healthy individuals and patient group with more various disease entities are needed to confirm our findings.

Disclosure of Interest: None declared

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AB1060 MEASURING AGREEMENT IN THE ULTRASONOGRAPHIC EVALUATION OF DISEASE ACTIVITY IN RHEUMATOID ARTHRITIS PATIENTS. A LATIN-AMERICAN MULTICENTER EXERCISE ASSESSING THE INFLUENCE OF SONOGRAPHER EXPERIENCE AND EXPERTISE

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Background: Ultrasonography (US) is an important tool in rheumatology practice but it depends on sonographer's experience.

Objectives: To evaluate the reliability of US assessment among observers across Latin American using a web tool.

Methods: Cross-sectional study. Fifty-one Latin American ultrasonographers took part in a web-based US exercise evaluating images from 20 RA patients. The 4 joints US score was calculated for each patient including bilateral radiocarpal, midcarpal and second metacarpophalangeal joints. PD and GS were graded from 0 to 3. US scores comes as the result of the addition of PD and GS score, being 36 the highest disease activity.

Five patients were evaluated twice in order to address intra-rater reliability. The inter and intra-rater reliability was assessed using a two-way random, absolute, individual and average-measures intra-class correlation coefficient (ICC). We stratified sonographers according to experience (defining High experience as: at least 5 years of experience and 80 US assessments/month).

Results: A total of 1020 US image assessments were performed. Mean 4-joints US score was 17 ± 8 . The ICC was in the excellent range for intra [(individual ICC = 0.945 (IC95% 0.905–0.965); average ICC = 0.972 (IC95% 0.950–0.982)] and

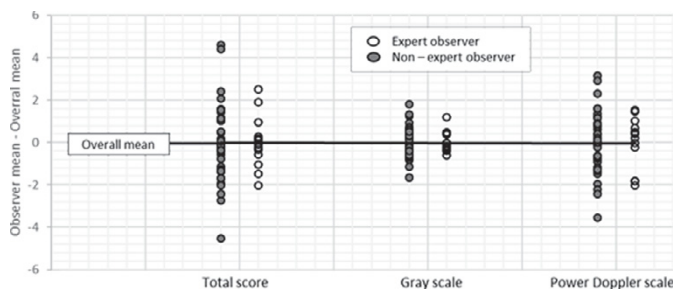


Figure 1. Agreement with the mean between multiple observers in total score, gray and power Doppler subscale.