The capacity of MiG detecting evolutionary changes in inflammatory pathology shows a potential for the follow-up of patients with spondyloarthropathy and enthesis-related disease.


AB1382 SCREENING OF INTERSTITIAL LUNG DISEASE IN PATIENTS WITH RHEUMATOID ARTHRITIS THROUGH AN ULTRASONOGRAPHY PROTOCOL

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Background: Interstitial Lung Disease (ILD) is a frequent complication in patients with autoimmune diseases. Rheumatoid arthritis (RA) does not escape this statement. Different protocols have been proposed for the ultrasound evaluation of this affection showing very good correlation with high-resolution computed tomography.

Objectives: To determine the sensitivity and specificity of an ultrasound evaluation protocol as a screening method for interstitial lung disease in rheumatoid arthritis.

Methods: Consecutive patients diagnosed with RA, with and without ILD, will be included. High-resolution chest CT (HRCT) will be performed in all patients. The lung evaluation protocol by ultrasonography (US); evaluates 50 intercostal spaces (ICS) and will be performed by a rheumatologist and imaging specialist trained in the procedure. The presence of B lines and pleural alterations in the EICs explored will be evaluated. A semiquantitative scale will be used to assess each EIC: 0 = normal; (<10 B lines); 1 = mild (11 to 20 B lines); 2 = moderate (21 to 50 B lines) and 3 = marked (>50 B lines). CT scan was considered the “gold standard” for the diagnosis of ILD and they were evaluated by experienced pulmonologists who were blind to the patient.

Results: 79 patients were included. Female sex 77% with a mean age of 55 (SD 11.4). The comorbidities observed were: hypertension 27%, dyslipidemia 15%, diabetes mellitus 10%, hypothyroidism 30%, smokers 14%, former smokers 18% and osteoporosis in 14% of patients. The patients had a median duration of the disease in years of 7.5 (IQR 9.2). Erosive disease was seen in 20 (20%) and rheumatoid nodules in 9.1% of patients. 91% of the patients were under treatment with corticosteroids. Rheumatoid factor was observed in 87% of the patients and Anti-CCP in 71% of the patients, of which 70% had high titters. DILD was observed by HRCT in 21 (27%) patients. The tomographic patterns observed were UIP 7 (33%), probable UIP 2 (10%), cellular NSIP 6 (29%), fibrosing NSIP 3 (14%). An indeterminate pattern was observed in 3 patients. The extent of pulmonary involvement was extensive in 48% of patients and limited in 52%. A sensitivity of 63% (CI95% 44-78) and a specificity of 92% (CI95% 81-97) were observed for the ultrasound evaluation protocol with a PPV of 81% (CI95% 61-92) and NPV of 83% (CI95% 71-90) and an LR+ 8.1 (95% CI 4.6-14.3) and LR- 0.4 (95% CI 0.3-0.48). AUC: 0.81 (p<0.0001).

Conclusion: We observed a moderate sensitivity and specificity of the method to assess interstitial lung involvement in RA with an acceptable AUC for a screening method. These findings are similar to what was found in other cohorts. We observe a high NPV. This means that in patients with a negative study result, the possibility of ILD would be removed. Studies in larger cohorts and comparison with other factors associated with ILD are necessary to improve our understanding of the method and give it the place it deserves.

REFERENCES:


AB1383 QUANTIFICATION OF THE PD SIGNAL BY COMPUTER ANALYSIS OF STATIC IMAGES; INTRA-OBSERVER, INTRA-PATIENT AND SENSITIVITY TO CHANGE VALIDATION.

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Background: The computerized assessment of ultrasound images is an alternative to the dichotomous subjective assessment often used in the study of entheseal. Previously, our group has demonstrated its usefulness in assessing grey scale images; however, the evaluation of enthesial hyperemia using this technique remains a pending task.

Objectives: -To determine the intra-observer and intra-patient variability of the hyperemia study using computer analysis of static images.

Methods: Patients with a diagnosis of known spondyloarthropathy and ultrasound enthesitis of the Achilles tendon -according to EULAR criteria (detection of hyperemia by power Doppler (PD) signal within 2mm of the cortex)- were selected. Longitudinal medial, central and lateral image sections were obtained. Hyperemia was assessed by PD signal detection, and the images with the highest signal intensity were recorded, maintaining the same Doppler gain and PRF settings for each subject. For image analysis, recordings were coded and randomized so that the analyst did not know to which patient a given section corresponds. Intra-patient variability was assessed by comparing the results of sections from the same patient with each other at two different times. Intra-observer variability was evaluated by subjecting the same image to two computer analyses at different times. Finally, validation of sensitivity to change was performed by successive measurements. The software used was ImageJ 1.53e (NIH, USA).

Results: Images of 12 patients with Achilles enthesis were included: 6 patients with SpA-nRx, four patients with PsA, and two patients with SpA-Rx. On intra-patient evaluation, significant differences in PD signal intensity were detected between medial, lateral, and central sections. In all cases, the measurement obtained in the central section was the highest (Friedman 15.500 P=.000; medial-central -1.500, P=.001; lateral-central -1.250, P=.007). The coefficient of variation in the first and second determinations without considering the sign of the variation was: 4.2% SD 5.5%. In the intra-observer evaluation of the PD signal evaluations at the central cut-off, the mean coefficient of variation, without considering the sign, was: 9.1% SD 7.2%. In assessing sensitivity to change, patients with 6-month ultrasound studies were grouped into those who maintained treatment and those who eventually discontinued treatment due to therapeutic failure. In the seven patients who maintained treatment, the mean change in hyperemic areas was -94.3% SD 4.4%, while in the five patients who discontinued treatment, it was -65.4% SD 6.3% (p=.000).

Conclusion: Computer analysis of static Achilles tendon images conforms to the same ultrasound image acquisition recommendations. In addition, it demonstrates excellent intra-patient and inter-observer variability and sensitivity to change, at least when correlated with therapeutic success or failure from a clinical perspective.