Capillary.io presented a sensitivity (S) of 79.82% and a specificity (E) of 82% in the recognition of normal capillaries. The automated system was able to recognize enlarged capillaries with a sensitivity of 86.97% and a specificity of 91.36%. Malignant capillaries were detected with 89.41% sensitivity and 78.75% specificity. Similarly, the system was able to detect tortuositys (S 66.94%; E 67.71%), ramifications (S 54.34%; E 58.61%) and hemorrhages (S 7.136; E 73.97%).

Conclusion: Capillary.io is a simple, easy-learning web-based system to get interpretation of nailfold capillaroscopic images. It may be a very useful tool to standardize the interpretation of capillaroscopic pictures and could provide great research in that field.

REFERENCES:

Disclosure of Interests: Borja Gracia Tello Shareholder of: Co-founder and shareholder of Capillario.io, Eduardo Ramos Shareholder of: co-founder and shareholder of Capillario.io, Carmen Pilar Simeón-Aznar: None declared, Vicent Fonollosa Pla: None declared, Alfredo Guiller-Del-Castillo: None declared, Albert Selva-O’Callaghan: None declared, Luis Sáez-Comet: None declared, Marí-Alfonso: None declared, Mayka Freire: None declared, Patricia Fanlo: None declared, Luis Callejas-Rubio: None declared, Norberto Ortego: None declared, Begoña Espinosa: None declared, Jose Antonio Todolí Parra: None declared, Jose Luis Callejas-Rubio: None declared, Norberto Ortego: None declared, Begona Marí-Alfonso: None declared, Mayka Freire: None declared, Patricia Fanlo: None declared. DOI: 10.1136/annrheumdis-2021-eular.4022

POS0257 TOWARDS A SIMPLIFIED FLUID-SENSITIVE MRI-PROTOCOL IN SMALL JOINTS OF THE HAND IN EARLY ARTHRITIS PATIENTS: RELIABILITY BETWEEN MDIXON AND REGULAR FSE SATURATION MRI-SEQUENCES
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Background: MRI facilitates early recognition of rheumatoid arthritis (RA) by depicting inflammation. Contrast-enhanced T1-weighted and T2-weighted fat-suppressed sequences have been sensitive and thus recommended, but are hampered by invasiveness, costs and long scan time. Therefore we introduced a modified Dixon-sequence (mDixon) which is more patient-friendly, reduces cost, and scan times by 83%. However, it is not known if this mDixon-sequence is reliable in relation to regular MRI-sequences with and without contrast (T1- and T2-weighted, respectively).

Objectives: We determined the reliability between regular MRI-sequences with and without contrast (T1- and T2-weighted, respectively) and mDixon-MRI in early arthritis patients.

Methods: 29 early arthritis patients underwent regular fat-suppressed-MRI (T1- and T2-weighted) and mDixon-sequences, of metacarpophalangeal-2-5 and wrist-joints. Two readers scored erosions, osteeitis, synovitis and tenosynovitis. Intraclass correlation coefficients (ICCs) between readers, and comparing the two sequences, were studied. Spearmen correlations were determined.

Results: Performance between the two readers with the regular-MRI sequences, was good to excellent (ICCs all ≥0.88). The between reader ICC was also good to excellent for the mDixon-MRI (ICCs all ≥0.76). Next, ICCs between the two sequences was investigated to determine the reliability of mDixon. ICCs were good to excellent for total RAMRIS score 0.87 (95%CI 0.74-0.94), for erosions 0.86 (95%CI 0.69-0.95), and total inflammation score 0.84 (95%CI 0.69-0.82). The individual MRI-inflammation scores, had ICCs for osteeitis 0.97 (95%CI 0.93-0.98), for synovitis 0.78 (95%CI 0.58-0.89), and for synovitis 0.57 (95%CI 0.26-0.77). In addition, scores were highly correlated for total RAMRIS, erosions, and total MRI-inflammation score (r=0.82, p<0.81, r=0.80, respectively).

Conclusion: Regular-MRI sequences and mDixon-MRI perform equally well, this suggests that mDixon-sequence is reliable to detect joint inflammation. Thus, this is the first step towards an simplified and abridged MRI-protocol in small joint-hands in early arthritis patients. The ultimate goal will be implementation of this mDixon-MRI sequence. Validation in larger studies is warranted.

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POS0258 REAL-TIME VERSUS STATIC SCORING IN MUSCULOSKELETAL ULTRASONOGRAPHY IN PATIENTS WITH INFLAMMATORY HAND OSTEOARTHRITIS
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Background: Ultrasound (US) is used in rheumatic musculoskeletal diseases (RMDs) such as hand osteoarthritis (OA) as outcome measure. Traditionally scoring is performed real-time, but central reading of static US images could avoid issues of inter-rater reliability. However, agreement between real-time and static assessment has not been studied.

Objectives: To study the agreement between real-time and static scoring of US in inflammatory hand OA.

Methods: Ultrasound was performed of 30 joints obtained in 75 patients with hand osteoarthritis, treated with prednisolone or placebo in a randomized double-blind trial. Hand joints were assessed for synovial thickening, effusion, Doppler signal and osteophytes by ultrasound (score 0-3 per joint) at baseline and after treatment. Two ultrasonographers blinded for clinical data scored the live images together (simultaneously) in real-time. A consensus score for each joint was recorded. Representative images stored during scanning were scored by one ultrasonographer minimally 6 months after real-time scoring. For each patient, images of each visit were scored paired, with known chronological order. Agreement between scoring methods was studied at joint level with quadratic intraclass correlation coefficients (ICC; mixed-effect model, absolute agreement, with clustering taken into account) were calculated at both timepoints. ICCs were also calculated for the delta of sum scores. Responsiveness of scoring methods was analyzed with generalized estimating equations (GEE) with treatment as independent and ultrasonography findings as dependent variable.

Results: Thirty-nine patients (52%) were treated with prednisolone and 36 (48%) were treated with placebo. Patient characteristics were well-balanced between treatment groups. All patients had signs of synovial thickening and osteophytes as assessed by real-time ultrasonography, and almost all signs of effusion (99%) or a positive Doppler signal (95%) in at least one joint. Total ultrasonography sum score for osteophytes was high (mean 45 ±SD 12), whereas sum score was low for positive Doppler signal (mean 5.9 ±SD 4.4), with intermediate sum scores for synovial thickening and effusion (mean 16 ±SD 6.3 and 11 ±SD 6.0 respectively). Static sum scores were overall slightly higher (osteophytes mean 48 ±SD 10; Doppler mean 6.9 ±SD 5.0; synovial thickening mean 20 ±SD 7.0 and effusion 13 ±SD 6.5).

Agreement at baseline was good to excellent at joint level (kappa 0.72-0.88) and moderate to excellent at patient level (ICC 0.59-0.86). Agreement for delta sum scores was poor to fair for synovial thickening and effusion (ICC 0.18 and 0.34 respectively), but excellent for Doppler signal (ICC 0.80) (Table 1).

Real-time ultrasonography showed responsiveness to prednisolone with a mean between-group difference of synovial thickening sum score of -2.5 (CI -4.7 to -0.3). Static ultrasonography did not show a decrease in synovial thickening (Figure 1). No difference in ultrasonography scores was seen for the other ultrasonography features, neither with real-time nor static scoring.

Conclusion: While cross-sectional agreement between real-time and static ultrasonography was good, agreement of delta sum scores was not and paired static ultrasonography measurement of synovial thickening did not show responsiveness to prednisolone therapy where real-time ultrasonography did. Therefore, real-time ultrasonography in clinical trials, real-time dynamic scoring should remain the standard.