Conclusions: In the persistent UA group and CCP-RA group, WBMRI findings at baseline already showed a definite pattern of spinal disease. Therefore the use of WBMRI findings at presentation in addition to clinical assessment would allow clinicians to classify a proportion of patients earlier.
Disclosure of Interest: None declared
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FRI0631 PREDICTIVE VALUE OF POWER DOPPLER ULTRASONOGRAPHY (PDUS) IN THE DIAGNOSIS OF EARLY RHEUMATOID ARTHRITIS

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Background: There is a short window of opportunity for early diagnosis and treatment of rheumatoid arthritis, that may be crucial for reaching remission and a low rate of radiographic progression. High resolution power doppler ultrasonography (PDUS) is helpful in early detection of synovitis and allows an accurate classification of patients with joint inflammation.
Objectives: To establish wether the presence of basal power doppler signal in patients with very early arthritis may be helpful in order to establish the risk of final diagnosis of rheumatoid arthritis according ACR criteria 1987 at a year of follow up.
Methods: We studied the presence of ultrasonographic Power Doppler (PD) signal on 28 joints (shoulders, elbows, wrists, MCPs, PIPs, knees) and 44 joints (28 joints and in addition hips, ankles, tarsus, and MTPs), with a mid-range equipment GE L5, in 70 patients with suspected early arthritis The patients were included with at least one of the following inclusion criteria: a) Swelling in 2 or more joints b) pain in MCPs, MTPs and/or the wrists c) morning stiffness of more than 30 minutes with <12 months of duration of the symptoms. Presence or not basal erosions (score ≥2 in at least one joint by modified Sharp method) for each patient were registered (65 patients with basal hands and feet radiology available). Presence of RF and ACPA positive were recorded as well. At one year follow-up was established whether patients met criteria for RA according1987 ACR or not. Statistical study: Chi-square, Fisher exact test, p univariant and Odds Ratio calculation.
Results: The presence of basal power doppler signal in ≥1 joints of 44 (PD44) in baseline visit shows statistically significant association to RA diagnosis at 12 months by ACR 1987 classification criteria, p=0.003, OR=5,43 (1,71–17,24) but the presence of at least one joint with power doppler signal of 28 joints (PD28) did not (p=0.051). Presence hypertrophic synovium with PD44 or not, in at least one joint (HSORPD44) was associated to RA diagnosis as well p=0.024; OR 10,24 (1,12–93,28). RF was positive in 18/70 (25,71%) and was associated to RA diagnosis (p 0.003, OR 8,31 (1,74–39,64), as well as FR/ACPA, positive in 20/70 (28,57%), p=0.001 OR 10 (2,10–47,58). PD44 in addition to positive RF was associated to RA p=0.003, OR 12,93 (1,59–104,94). Presence of basal radiographic erosions (BRE) was associated to RA, p=0.001 OR 7,72 (2,2–26,8). PD44 in addition to BRE was significantly associated to RA p=0.0005, OR 29,33 (3,61–238,37). PD28 in addition to RF or BRE was significantly associated to RA respectively p 0.0005 OR 24,20 (2,98–196.34) and p=0.003 OR 12,93 (1,59–104,94).

BASAL		RA YES	p (univariate)	OR	CI 95%
PD 44	YES	38/52 (73,1%)	0.003	5,43	(1,71-17,24)
	NO	6/18 (33,3%)			
PD44+FR	YES	15/16 (93,9%)	0.003	12,93	(1,59-104,94)
	NO	29/54 (53,7%)			
PD44+BAS EROS n=65	YES	24/25 (96%)	0.0005	29,33	(3,61-238,37)
	NO	18/40 (45%)			
HSORPD 44	YES	43/64 (67,19%)	0.024	10,24	(1,12-93,28)
	NO	1/6 (16,6%)			
BAS EROS n=65	YES	26/30 (86,7%)	0.001	7,72	(2,2-26,8)
	NO	16/35 (45,7%)			
FR	YES	18/20 (90%)	0.003	8,31	(1,74-39,64)
	NO	26/50 (52%)			
FR/PCC	YES	20/22 (90,9%)	0.001	10	(2,10-47,58)
	NO	24/48 (50%)			

Conclusions: The presence of at least one joint with power doppler signal of 44 joints (PD44) on baseline visit may help to predict the RA diagnosis at 12 months of follow up according to criteria ACR 1987, in patients with early RA. PD 44 in addition to classic RA factors (RF and basal radiographic erosions) increased the risk final of RA, till more than three times in case of concomitant basal PD44 and radiographic erosions.
Disclosure of Interest: None declared
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FRI0632 MRI-US FUSION IMAGES FOR RHEUMATOID ARTHRITIS: CAN DOPPLER SUBSTITUTE FOR GADOLINIUM?

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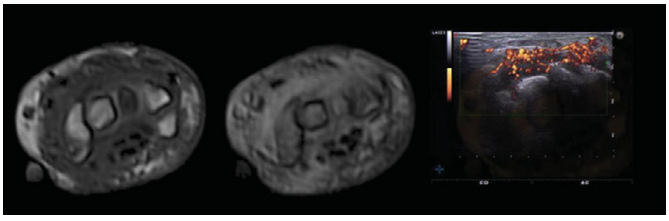
Background: MRI is increasingly used to objectively assess disease activity and damage in patients with rheumatoid arthritis (RA), especially in clinical trials. The preferred scoring method is the RAMRIS, which implies the use of gadolinium, an intravenous contrast agent, to assess synovitis.
Objectives: We evaluated in a small preliminary study if the fusion of MRI and US Power Doppler (PD) images could avoid gadolinium.
Methods: 12 patients (10 women) affected by RA, with at least one involved wrist, were studied. Mean age was 58.8±9.1 years and mean disease duration was 54.5±56.1 months. Disease activity (DAS 28-CRP) was evaluated on the day of the examinations.
MRI was performed on a extremity-dedicated machine (Oscan 0.3 T, Esaote, Genova Italy) and US by MyLab Twice ultrasound scanner with a virtual navigator software (Esaote, Genova, Italy). T3Dt1 sequences were used in the fusion images (parameters: TR/TE/NEX 38/16/1, matrix 192*192*39, FOV 160*160*60, thickness 0.6 mm). US scans were performed sagittally on the radio-lunate joint and axially on the proximal carpal bones of the dorsal wrist with B-mode and PD (PRF 500–750Hz; WF: 3; maximum gain with probe's calibration in air). Magnetic position sensor linked to the US transducer (13 MHz) and low magnetic field transmitters were used to allowed fusion images.
MRI synovitis was scored by the RAMRIS and with the contrast-enhanced dynamic method resulting in rate of early enhancement (REE) and relative enhancement, (RE). The US score was the Global OMERACT-EULAR Synovitis Score (GLOESS) and its individual parts.
Results: Inter-reader agreement for PD by weighted kappa was 0.75 (75%CI 0.53–0.96) for the sagittal and 1 (75%CI 1–1) for the axial view. It was 0.85 (75%CI 0.69–0.98) for MRI synovitis.
There was a correlation between DAS28 and the MRI synovits score (r=0.59, p=0.04), REE (r=0.60, p=0.04), and RE (r=0.58, p=0.05), US Doppler in the long (r=0.75, p=0.005) and in the axial axes (r=0.86, p=0.01), but not with B-mode synovial effusion (r=0.56, p=0.056). The GLOESS correlated with DAS28 (r=0.66, p=0.019), but not with RAMRIS synovitis, erosions or BME nor with REE. The MRI wrist synovitis score did not correlate with the Doppler score on the sagittal and axial views, nor with US B mode score. This was true also for the three individual MRI slices of the wrist, the REE and the RE. The figure shows from the left the pre-contrast axial MRI image, the post-contrast and the fusion images.



Conclusions: Although both MRI and Doppler are good indicators of disease activity in RA, they seem not to be interchangeable. This may be due to the fact that MRI and US show different features of synovitis or, alternatively, that MRI comprised the whole wrist whereas US visualized only its dorsal area. Although our preliminary data do not support the use of fusion images, these should be investigated on larger number of patients with a more extended PD approach.
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FRI0633 WHICH ARE THE ULTRASOUND LESIONS UNDERLYING DACTYLITIS?

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Background: Dactylitis, defined as a diffuse swelling of a digit is a hallmark feature of peripheral spondyloarthritis (SpA), particularly in psoriatic arthritis, with a prevalence between 16% and 48[1].
Objectives: This study aims to assess the frequency of the pathological lesions in dactylitis using ultrasonography (US) and to evaluate their association with patient-reported tenderness.
Methods: Thirty-four dactylitis from 20 consecutive patients suffering from peripheral spondyloarthritis were examined by ultrasound. At US examination, the entire digit was scanned both on dorsal and palmar/plantar sides. The following US pathological lesions were scored: soft tissue thickness, soft tissue edema, soft tissue vascularization, synovitis of metacarpophalangeal (MCP)/metatarsophalangeal (MTP), of proximal interphalangeal (PIP) and of