Hand ultrasound in systemic lupus erythematosus and Sjögren's syndrome: a diagnostic and management tool for the assessment of inflammatory arthritis.

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Background: Musculoskeletal Ultrasound (US) is increasingly used as a valid and reliable tool for diagnosis and management of inflammatory arthritis. However, its use in Systemic Lupus Erythematosus (SLE) and Sjögren's syndrome (SS) patients for assessment of arthritis in clinical practice remains less established.
Objectives: To analyse a real life cohort of SLE and SS patients referred for US assessment of their hand joints in the context of clinical symptoms of arthralgia/arthritis, to review their characteristics and correlate US findings with clinical and laboratory markers, and disease activity scores (musculoskeletal ESSDAI and BILAG).
Methods: We performed a cross-sectional study of patients with SLE and SS referred to our US clinic in the last year. The OMERACT US scoring system was used to assess patients' wrists, metacarpophalangeal and proximal interphalangeal joints bilaterally.
Results: Patient characteristics and differences between ultrasound findings in SLE (n=18) and SS (n=23) patients are shown in Table 1. There was no correlation between the total Power Doppler (PD) score and musculoskeletal BILAG and ESSDAI scores (R=0.36, P= 0.12, and R=0.32, P=0.13, respectively). Similarly, there was no correlation between the total Grey Scale score (assessing the degree of synovial hypertrophy) with either musculoskeletal BILAG or ESSDAI scores (R=0.41, P=0.09, and R=0.084, P=0.7, respectively). Interestingly, more than one in two SLE patients had erosions, while more than one in three had erosions in the SS group. Active synovitis was found in 27.8 % of SLE and 21.7% of SS patients. US assessment prompted treatment changes (including both optimisation of immunosuppressive therapy or analgesia alone based on the results of the scan) in up to 61% of SLE patients and in 35% of SS patients, who would have otherwise not had their treatment changed based on BILAG/ESSDAI scores alone.
Conclusion: US examination was proven superior to clinical examination and blood test results for optimising the management of hand arthralgia/arthritis associated with SLE and SS. Future research is needed to establish if the development of erosions could be prevented by early diagnosis and monitoring using US, with prompt treatment of inflammatory arthritis associated with SLE and SS.

	SLE (n=18)	SS (n=23)	
Age (mean +/- SD)	45.7+/- 12	51.4 +/- 14	p=0.183
Gender (% females)	94.4	100	p=0.254
Disease duration (months, mean +/- SD)	168.5+/-177.1	106.9+/-118.1	p=0.211
% patients on steroids	44.4	4.3	p=0.002
% patients on cDMARDs	88.9	52.2	p=0.012
% patients on Rituximab	11.1	8.7	p=0.795
% ANA	77.8	34.8	p=0.006
%dsDNA	27.8	13%	p= 0.238
% ENA	55.6	56.5	p = 0.952
CRP (mean +/- SD)	4.98 +/- 4.17	4.69 +/- 6.04	p= 0.871
ESR (mean +/- SD)	31.41 +/- 26.11	23.35 +/- 19.78	p= 0.273
SJC (mean +/- SD)	3.29 +/- 4.29	2.24 +/- 6.11	p= 0.580
TJC (mean +/- SD)	7.69 +/- 7.96	6.20 +/-7.68	p= 0.590
Total PD score (mean +/- SD)	1.35+/-2.7	0.52+/-1.68	p= 0.240
Total Grey scale score (mean +/- SD)	2.167+/-14.67	1.409 +/-4.68	p=0.012
% patients with active arthritis	27.8	21.7	p = 0.653
% patients with osteophytes	61.1	60.9	p= 0.984
% patients with erosions	55.6	34.8	p=0.184