Composite Ultrasound Score in Spondyloarthropathies

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Background/Purpose: A comprehensive ultrasound (US) scoring system which includes enthesitis tenosynovitis and synovitis for use in patients with spondyloarthropathies (SpA) is not yet available. The objective of the study was to develop an US composite scoring system, including both enthesitis tenosynovitis and synovitis, suitable for the evaluation of patients with SpA.

Methods: Consecutive patients with SpA according to the Assessment of SpondyloArthritis International Society (ASAS) classification criteria for axial, and/or peripheral spondyloarthritis and Rheumatoid arthritis (RA) patients fulfilling ACR/EULAR criteria (control group) in whom an US was performed were included. US examination was done by an experienced rheumatologist using both grey scale US and power Doppler (PD). The following articular areas were assessed: 2-3 MCP joints, 2-3 proximal PIP joints, wrist, knee and second and fifth MTP joints. Knee and ankle entheses were examined. Both second and third flexor and fourth and sixth extensor tendons of the hands were examined for tenosynovitis. Synovitis, tenosynovitis and enthesitis were defined according to OMERACT preliminary definitions. Both GS and PD synovitis were graded on a semiquantitative scale from 0 to 3. For each one of the structures examined (enthesis, tendons and synovial) an initial US score was obtained by multiplying the semiquantitative scale by the number of sites involved. Using that score patients were classified into a new US structure specific (enthesis, tendons and synovial) activity score ranging from 0 (no activity) to 3 (severe activity) for that structure. Finally adding the US structure specific activity scores a composite US activity score was constructed ranging from 0 (no activity) to 3 (severe activity).

Results: 33 patients with SpA (70% males, mean (SD) age: 51 (14.6) and 35 with RA (97% females, mean (SD) age: 55.7 (16) were included.

Table. Comparison of different variables related to disease activity in the different US composite activity score classification groups in patients with SpA and RA.

	SpA					
US composite activity score classification	N patients (%)	Mean DAS28 (SD)	Mean ESR (SD)	Mean HAQ (SD)	Mean VAS Physician (SD)	Mean CPDAI (SD)
0 (none involvement)	1 (3)	2.3 (0)	18 (0)	0.25 (0)	20 (0)	0 (0)
1 (mild)	26 (79)	3.99 (0.9)	21 (15.8)	0.63 (0.54)	46.5 (20)	3.3(1.9)
2 (moderate)	6 (18)	5.15 (1.3)	36 (31)	1.33 (0.8)	46.7 (27)	4.2 (3.9)
3 (severe)	0 (0)	-		-	-	-
P value (1-mild vs 2-moderate) Mann Whitney		0.1366	0.2107	0.0477	0.9197	0.9363
	RA					
US global severity classification	N patients (%)	Mean DAS28 (SD)	Mean ESR (SD)	Mean HAQ (SD)	Mean VAS Physician (SD)	Mean CDAI (SD)
0 (none involvement)	0 (0)	-	-	-	-	-

1 (mild)	24 (69)	4.6 (1)	21 (15.8)	0.94 (0.83)	40.6 (22)	17.9 (8.6)
2 (moderate)	11 (3)	5.7 (0.7)	36 (31)	1.22 (0.9)	63 (20)	29.2 (9.2)
3 (severe)	0 (0)	-	-	-	-	-
P value (1-mild vs 2-moderate) Mann Whitney		0.0067	0.2551	0.386	0.008	0.0051

Most patients were classified as with mild disease activity by the US composite activity classification score in both diseases SpA and RA. In both diseases patients with higher US cmposite score had higher indices of disease activity although the differences were not always significant.

Conclusion: An US composite activity classification score taking into account synovial, enthesis and tendons involvement proved to correctly discriminate patients with SpA and RA in different activity status according to classical activity indices.