Correspondence on 'MRI lesions in the sacroiliac joints of patients with spondyloarthritis: an update of definitions and validation by the ASAS MRI working group'

The use of MRI in the evaluation of axial spondyloarthritis (axSpA) has become more established particularly over the past decade. The Assessment in SpondyloArthritis International Society (ASAS) has previously developed criteria for axSpA that incorporated clinical and imaging aspects including the use of MRI in the detection of active sacroiliitis.^{1,2} In addition to active inflammation represented by bone marrow oedema (BMO), MRI can demonstrate several structural changes that reflect chronic inflammation accumulated during the natural history of axSpA. Although the presence of structural sacroiliac joint (SIJ) changes on their own is not sufficient to meet the ASAS definition for a positive MRI, these features can influence the diagnosis when it is unclear whether the BMO lesion(s) meet the ASAS criterion.²

We read with great interest the article by Maksymowych *et al*, which provided an update on the ASAS standardised definitions of SIJ MRI lesions in axSpA and these lesions were also evaluated in a validation exercise performed by the ASAS MRI working group, demonstrating an overall acceptable reliability in the MRI lesions assessment.³ We conducted a study that aimed to test the interobserver reliability in the detection of individual SIJ lesions on MRI among clinically proven cases of axSpA evaluated by musculoskeletal radiologists to test the generalisability. Following approval from the institutional research ethics board with a waiver for informed consent, the departmental radiology database of a tertiary care academic hospital was used to search for subjects who underwent dedicated SIJ MRI for the assessment of axSpA. Ninety-four consecutive cases of axSpA (188 SIJs) were included in the study. Each SIJ MRI scan was scored for BMO as a sign of active inflammation, and for fat lesions, erosions, sclerosis and ankylosis as features of chronic structural change. BMO, erosions and fat lesions were scored on each SIJ quadrant (upper iliac, lower iliac, upper sacral, lower sacral), while sclerosis and SIJ ankylosis was recorded as present or absent at each SIJ. MRI scoring was performed by two musculoskeletal radiologists with 7 and 11 years of experience

in reading dedicated axSpA MRI. The scores of the two readers were compared using kappa statistics.⁴

BMO was scored in 98/188 (52%) and 69/188 (37%) of the SIJs, and the number of SIJs which had structural changes without BME was 86/188 (46%) and 63/188 (34%), according to readers 1 and 2, respectively. Mean (95% CI) kappa value for BMO scoring was 0.48 (0.38–0.58), for erosions 0.27 (0.18–0.35) and for fat lesions 0.65 (0.58–0.73). Kappa value for the assessment of sclerosis was 0.6 (0.09–1.11) and for ankylosis 0.87 (0.84–0.9). More details of the MRI scoring are provided in [table 1](#). The results indicate moderate agreement for the assessment of active inflammation at the SIJ represented by BMO. Assessment of structural changes on MRI showed almost perfect agreement in the evaluation of ankylosis, moderate agreement for sclerosis, substantial agreement for fat lesions and fair agreement for erosions assessment.

Overall, and except for erosions, the results of this work are comparable and support the finding of the prior studies including the ASAS validation exercise,³ demonstrating adequate MRI reliability in the evaluation of both active inflammatory and structural changes at the SIJ.^{3,5} Erosions can often be a challenging and complex feature to call on MRI with high confidence. The ASAS criteria for a positive MRI remain primarily based on the detection of BMO at the SIJ that must be highly suggestive of SpA and other features are considered supportive but not required to meet the definition at the present time.² We believe that this study confirms that MRI continues to be a reliable imaging modality in providing global SIJ assessment in the context of suspected axSpA in standard practice.

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Table 1 Scoring summary of sacroiliac joint MRI features between the two readers and interobserver agreement

	BMO				Erosion				Fat lesion			
Localisation	N (Reader 1)	N (Reader 2)	Kappa	Positive agreement (%)	N (Reader 1)	N (Reader 2)	Kappa	Positive agreement (%)	N (Reader 1)	N (Reader 2)	Kappa	Positive agreement (%)
R-upper iliac	30	22	0.58	69	74	39	0.19	64	21	27	0.66	75
R-lower iliac	34	16	0.43	56	66	25	0.26	55	21	25	0.65	74
R-upper sacral	30	20	0.55	69	53	17	0.17	40	33	36	0.74	84
R-lower sacral	16	12	0.66	71	28	11	0.41	51	27	31	0.79	86
L-upper iliac	27	25	0.47	62	74	31	0.19	57	27	29	0.53	68
L-lower iliac	32	23	0.31	51	66	26	0.20	52	27	30	0.56	70
L-upper sacral	37	34	0.48	68	53	21	0.28	51	42	39	0.58	77
L-lower sacral	15	8	0.36	43	29	12	0.43	54	29	35	0.66	78
Mean kappa values (95% CI)	0.48 (0.38 to 0.58)				0.27 (0.18 to 0.35)				0.65 (0.58 to 0.73)			
	Sclerosis				Ankylosis							
R sacroiliac joint	15	25	0.56	65	20	18	0.86	89				
L sacroiliac joint	14	20	0.64	71	21	19	0.87	90				
Mean Kappa values (95% CI)	0.60 (0.09 to 1.11)				0.87 (0.84 to 0.9)							

BMO, bone marrow oedema; L, left; R, right.

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