classification criteria for AS. Less patients with late onset disease were HLA-B27 positive, the reason for this is unknown. These patients had worse functional outcomes, which could reflect the older age of symptom onset. It is notable that patients with late onset AS are being treated with less biologic agents, and have a slightly higher rate of NSAID usage. Additional registry studies into this subgroup would help to understand these variations in medication usage and prescribing practices.

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SAT0383

ENHANCED PERFORMANCE OF THE ASAS CLASSIFICATION CRITERIA BY DELETION OF NON-DISCRIMINATORY CLINICAL ITEMS: DATA FROM THE SCREENING IN AXIAL SPONDYLOARTHRITIS IN PSORIASIS, IRITIS, AND COLITIS COHORT

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Background: The ASAS classification criteria for axial spondyloarthritis (axSpA) have overall sensitivity/specificity of 82.9%/84.4% but component imaging and clinical arms differ in performance (66.2%/97.3% and 56.6%/83.3%, respectively)¹.

Objectives: We aimed to demonstrate that a data-driven elimination of SpA clinical features that were non-discriminatory in comparisons of patients diagnosed with and without axSpA in a prospective cohort of patients with undiagnosed back pain could enhance the performance of the criteria.

Methods: We used data from the prospective multicenter Screening for Axial Spondyloarthritis in Psoriasis, Iritis, and Colitis (SASPIC) Study. Consecutive patients ≤45 years of age with ≥3 months undiagnosed back pain with any one of psoriasis, AAU, or colitis undergo routine diagnostic evaluation by a rheumatologist for axial SpA, including imaging assessed by central readers. Univariable and multivariable logistic regression analysis was performed to determine which clinical SpA features were/were not discriminatory for the final diagnosis of axSpA. We then compared the sensitivity and specificity of the ASAS criteria with and without these features.

Results: A total of 246 patients were recruited, 47.6% being diagnosed with axSpA (61.5% male, age 33.7 years, symptom duration 7.6 years, B27 positive 52.1%). The following clinical SpA features were non-discriminatory between axSpA/not axSpA: NSAID response, family history of SpA, heel enthesitis, peripheral arthritis, dactylitis. Specificity of the clinical arm and the overall criteria increased from 82.2% to 86.8% without impacting sensitivity. This effect was particularly noteworthy in patients with lower degree of symptomatology (back pain severity <5/10, specificity increases from 76.7% to 90.7%), short symptom

duration (<5 years, specificity increases from 78% to 84.7%), and in females (specificity increases from 80.6% to 86.1%).

Conclusion: In a prospective cohort with a high pre-test probability of axSpA certain clinical SpA features were not helpful in discriminating a diagnosis of SpA from not-SpA. Deletion of these features from the list of SpA features used in the ASAS classification criteria enhanced the performance of the criteria, especially in female patients and those with early disease.

References:

[1] Rudwaleit et al. Ann Rheum Dis 2009;68: 777-83

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SAT0384

REPLACEMENT OF RADIOGRAPHIC SACROILIITIS BY MRI STRUCTURAL LESIONS: WHAT IS THE IMPACT ON CLASSIFICATION OF AXIAL SPONDYLOARTHRITIS IN THE ASAS CLASSIFICATION COHORT?

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Background: Classification of axial spondyloarthritis (axSpA) is based on either an imaging or clinical arm. Radiographic or MRI evidence of sacroiliitis can be applied for the imaging arm. However, it is well-established that reliability and sensitivity of radiographic sacroiliitis is inadequate.

Objectives: To assess the impact of replacing radiographic sacroiliitis with MRI structural lesions (MRI-S) typical of axSpA on the number of patients classified as having axSpA in patients with undiagnosed back pain recruited to the ASAS Classification Cohort (ASAS-CC).

Methods: MRI images of the sacroiliac joint (SIJ) were available from 217 cases in the ASAS-CC, which also had clinical, laboratory, and radiographic data. Seven central readers from the ASAS-MRI group recorded MRI lesions in an eCRF that included active (MRI-A) and structural (MRI-S) lesions typical of axSpA. MRI-A was deemed to be present according to majority agreement (≥4/7) of central readers. MRI-S was deemed to be present according to the majority (majority reader MRI-S) and also according to at least 2 central readers (≥2-reader MRI-S). We calculated the number of patients that were classified differently after replacement of radiographs by MRI-S for overall fulfillment of the ASAS criteria and for the imaging arm.

Results: In total, 119 (54.8%) cases fulfilled the axSpA criteria based on local reading of radiographic sacroiliitis and central reading of active inflammation on MRI. This changed to 125 (57.6%) and 118 (54.4%) of cases after replacement of radiographic sacroiliitis by ≥2-reader and majority reader MRI-S, respectively (Table). A total of 13 (6.0%) and 7 (3.2%) cases who were classified as not having axSpA were re-classified as having axSpA after replacing radiographic sacroiliitis with ≥2-reader and majority reader MRI-S, respectively. Conversely, 7 (3.2%) and 8 (3.7%) cases were re-classified as not having axSpA after substitution by ≥2-reader and majority reader MRI-S, respectively. When fulfillment of the imaging arm was the primary consideration (irrespective of the clinical arm), the number of patients reclassified from not axSpA to axSpA was 25 (11.5%) by ≥2-reader and 13 (6.0%) by majority reader MRI-S, while 8 (3.7%) and 11 (5.1%) were reclassified from axSpA to not axSpA.

Conclusion: The number of patients classified as having axSpA does not change substantially when MRI-S replaces radiographic sacroiliitis. However, it remains possible that MRI structural lesions can influence the final diagnosis, the gold standard for assessment of the performance of the ASAS criteria.

Patient Category	Number	ASAS criteria		Imaging arm		Clinical arm	
		Sen	Spec	Sen	Spec	Sens	Spec
All patients	246	65	82.2	36.8	97.7	50.4	82.2
High confidence in diagnosis	190	73.8	84.5	47.5	98.2	56.3	84.5
Patients with back pain ≥5/10	165	63.3	84.9	34.2	98.8	51.9	84.9
Patients with back pain <5	81	68.4	76.7	42.1	95.3	47.4	76.7
Patients with symptom duration ≥5 years	103	71.2	85.7	35.6	97.1	56.2	85.7
Patients with symptom duration <5 years	143	54.5	78	38.6	98.3	40.9	78
Males	129	68.1	84.2	47.2	98.2	48.6	84.2
Females	117	60	80.6	20	97.2	53.3	80.6
After deletion of 'NSAID response', 'Family Hx SpA', 'heel enthesitis', 'peripheral arthritis', 'dactylitis' SpA features							
All patients	246	65	86.8	36.8	97.7	50.4	86.8
High confidence in diagnosis	190	73.8	87.3	47.5	98.2	56.3	87.3
Patients with back pain ≥5/10	165	63.3	84.9	34.2	98.8	51.9	84.9
Patients with back pain <5	81	68.4	90.7	42.1	95.3	47.4	90.7
Patients with symptom duration ≥5 years	103	71.2	88.6	35.6	97.1	56.2	88.6
Patients with symptom duration <5 years	143	54.5	84.7	38.6	98.3	40.9	84.7
Males	129	68.1	87.7	47.2	98.2	48.6	87.7
Females	117	60	86.1	20	97.2	53.3	86.1

Impact of Replacement of Radiographic Sacroiliitis by MRI Structural Lesions on SpA Classification in cases with all clinical, radiographic, and central and local MRI inflammation data available (n=217)

MRI assessment used	SpA Classification=Yes N(%)	SpA Classification=No N(%)	Imaging Arm SpA Classification=Yes N(%)	Imaging Arm SpA Classification=No N(%)
Radiographic Sacroiliitis + Majority Central Reader MRI Inflammation Positive	119 (54.8%)	97 (44.7%)	83(38.2%)	134 (61.8%)
Replace Radiographic Sacroiliitis with ≥2 Central Reader MRI Structural Positive	125 (57.6%)	92 (42.4%)	100 (46.1%)	117 (53.9%)
Replace Radiographic Sacroiliitis with Majority Central Reader MRI Structural Positive	118 (54.4%)	99 (45.6%)	85 (39.2%)	132 (60.8%)

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SAT0385

CAN MISCLASSIFICATION BETWEEN SPONDYLOARTHRITIS (SPA) AND RHEUMATOID ARTHRITIS (RA) OCCUR? SPA-RELATED CLINICAL MANIFESTATIONS AMONG RA AND SPA PATIENTS - A SYSTEMATIC LITERATURE REVIEW

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Background: Delayed diagnosis is associated with worse outcomes and poor treatment responses in patients with SpA, including psoriatic arthritis (PsA) and axial spondyloarthritis.¹ Misclassification may be associated with this delay, as SpA and RA, especially seronegative RA, may present with similar manifestations such as joint pain, swelling, fatigue, and disability. Key features that typically distinguish SpA from RA include spine pain, dactylitis, enthesitis, psoriasis, and nail psoriasis.² Increased physician awareness of the potential overlap and distinctions between SpA and RA manifestations is needed for the early diagnosis and appropriate treatment for SpA.

Objectives: To identify and summarise the published literature on the prevalence of SpA-related clinical manifestations among patients with RA and SpA.

Methods: Publications were retrieved from Embase®, Cochrane, MEDLINE®, and MEDLINE® In-Process databases. Studies were included if they were

non-interventional, recruited patients with RA and SpA, or patients with seronegative/seropositive RA, and reported the following manifestations: enthesitis, dactylitis, axial symptoms, psoriasis, or nail psoriasis. Two reviewers assessed each citation against predefined eligibility criteria, with discrepancies reconciled by a third independent reviewer.

Results: Of the 4479 publications retrieved, 18 studies were included (Figure 1). All studies compared SpA populations to patients with RA. Of the 18 studies, 11 studies reported patients with only PsA, 2 studies reported patients with only ankylosing spondylitis (AS), and 5 studies reported mixed SpA populations. Three studies each reported data pertaining to seropositive/seronegative RA and early RA, defined as symptom onset <1 year. The majority (N=12) of studies used ultrasound imaging to identify manifestations of interest. Enthesitis (N=17) was the most frequently evaluated manifestation while axial symptoms (N=2) was least evaluated. Of the studies reporting enthesitis, the majority (N=14) reported a higher prevalence of enthesitis in the SpA cohort compared to the RA cohort. The remaining studies (N=3) reported no significant difference in enthesitis between the SpA and RA cohorts. Notably, these 3 studies comprised of the 2 studies evaluating only AS patients, and all 3 studies evaluated late RA patients. In contrast, the 3 studies that reported early RA and PsA patients found a significantly higher prevalence of enthesitis in early PsA vs. early RA cohort. Two of the 3 studies reporting RA serostatus found a higher prevalence of enthesitis, psoriasis, and/or nail psoriasis in the SpA population compared to seronegative and seropositive RA cohorts. All studies reporting axial symptoms, dactylitis, psoriasis, and nail psoriasis found a higher prevalence of the corresponding manifestation in the SpA vs. RA cohort.

Conclusion: While this review found a higher prevalence of key SpA-related clinical manifestations in SpA vs. RA, overlap was present suggesting that misclassification could occur. Differences in the prevalence of manifestations were also seen in the early vs. late RA populations as well as by RA serostatus. This suggests that an earlier and comprehensive evaluation, including advanced imaging of peripheral manifestations such as enthesitis, dactylitis, axial symptoms, and skin signs such as psoriasis and nail disease, among RA and SpA patients may reduce misclassification and inappropriate treatment. Further research is needed to confirm these findings.

References:

- [1] Seo et al. Clin Rheumatol. 2015;34:1397-1405.
- [2] Merola et al. RMD. 2018;4:e000656.

Figure 1: PRISMA diagram for study selection

*Studies reporting data pertaining to enthesitis, dactylitis, psoriasis, inflammatory back pain, and nail psoriasis for spondyloarthritis and rheumatoid arthritis were included

²Databases were searched till 10 October 2019; the proceedings from ACR and EULAR conferences were also searched for the last two years