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THU0363 DO ILLNESS PERCEPTIONS AND COPING CHANGE OVER TIME IN PATIENTS RECENTLY DIAGNOSED WITH AXIAL SPONDYLOARTHRITIS? A 2-YEAR FOLLOW-UP STUDY IN THE SPACE COHORT

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Background: In recently diagnosed axial spondyloarthritis (axSpA), illness perceptions are important in the relationship between back pain and Health-Related Quality of Life (HRQoL) or work productivity loss (WPL). ¹ Coping did not have an additional impact on this relationship, but was associated with HRQoL. Therefore, health outcomes might be improved by influencing illness perceptions and possibly coping. With respect to disease management, it is important to know if illness perceptions and coping remain stable over time. However hardly any information is available, especially for early axSpA, as the few studies that have been conducted mostly had a cross-sectional design and investigated patients with long-standing radiographic axSpA.

Objectives: To investigate if illness perceptions and coping strategies change in the first 2 years after diagnosis of axSpA.

Methods: Patients diagnosed with axSpA and ≥ 1 follow-up visit (1 year and/or 2 years) in the SPACE cohort were included in the analysis. Mixed linear models were used to test if illness perceptions (measured by the Revised Illness Perception Questionnaire (IPQ-R, scale 1-5)), coping (Coping with Rheumatic Stressors (CORS, scale 1-4)), back pain (scale 0-10), HRQoL (physical (PCS) and mental component summary (MCS), scale 0-100, of the 36-item Short-Form Health Survey (SF-36)), WPL and activity impairment (Work Productivity and Activity Impairment (WPAI, range 0-100%)) changed over time. Results were stratified for gender and age when the interaction term was statistically significant ($p < 0.05$).

Results: In total, 150 axSpA patients (mean age 30.4 years, 51% female, 65% HLA-B27+) were analysed. Baseline mean back pain (SD) was 4.0 (2.5), PCS was 28.8 (14.0), MCS was 47.8 (12.4), WPL was 34.1% (29.8) and activity impairment was 38.7% (27.9). Illness perceptions and coping strategies showed minimal changes over time (Table 1, 2). Over two years patients remained having negative illness perceptions (which were important in the association between back pain and health outcomes in the previous study). For example, over 2 years patients had strong beliefs in severe consequences ('consequences'), had still negative emotions towards their disease ('emotional representation') and had strong beliefs in chance ('chance') as a cause for axSpA.

Over two years, back pain (mean change $\pm$ SD is -1.5 ± 2.2) and activity impairment ($-14.4\% \pm 27.2$) decreased, PCS (11.1 ± 13.3) and WPL ($-15.3\% \pm 28.7$) improved statistically significantly, but MCS did not change (0.7 ± 13.9).

Abstract THU0363 –Table 1.

Table 1 Illness perceptions in early axSpA patients at baseline and 1-2 years after diagnosis in the SPACE cohort

	Range	Baseline n=150	Year 1 n=130	Year 2 n=114
Identity	0-15	4.7 (2.4)	5.0 (2.7)	4.6 (2.4)
Consequences	1-5	2.9 (0.7)	2.8 (0.8)	2.8 (0.9)
Timeline (acute/chronic)	1-5	3.6 (0.8)	3.8 (0.8)	3.8 (0.8)
Personal control	1-5	3.3 (0.6)	3.3 (0.6)	3.4 (0.6)
Treatment control	1-5	3.5 (0.5)	3.4 (0.6)	3.5 (0.6)
Illness coherence*	1-5	3.3 (0.8)	3.5 (0.8)	3.6 (0.7)
Timeline (cyclic)	1-5	3.6 (0.8)	3.6 (0.8)	3.6 (0.8)
Emotional representation*	1-5	2.7 (0.8)	2.6 (0.8)	2.5 (0.8)
Psychological attributions	1-5	2.1 (0.9)	2.1 (0.9)	2.1 (0.9)
Risk factors	1-5	2.2 (0.6)	2.2 (0.6)	2.1 (0.6)
Immunity	1-5	2.3 (0.8)	2.4 (0.9)	2.3 (0.9)
Accident				
Male	1-5	2.3 (1.2)	2.1 (1.1)	2.0 (1.1)
Female	1-5	1.8 (1.0)	2.1 (1.2)	1.9 (1.1)
Chance	1-5	3.3 (1.2)	3.2 (1.2)	3.3 (1.2)

Results are presented as mean (SD) unless stated otherwise. *Results of the mixed linear models with $p < 0.002$ ($p < 0.05/21$, correction for multiple testing) were considered to be statistically significant and are printed in bold.

Abstract THU0363 –Table 2.

Table 2 Coping strategies in early axSpA patients at baseline and 1-2 years after diagnosis in the SPACE cohort

	Range	Baseline n=150	Year 1 n=130	Year 2 n=114
Pain				
Comforting cognitions	1-4	2.8 (0.6)	2.9 (0.6)	2.8 (0.6)
Decreasing activities	1-4	2.1 (0.6)	2.1 (0.6)	2.0 (0.6)
Diverting attention	1-4	2.3 (0.6)	2.4 (0.6)	2.4 (0.6)
Coping with limitations				
Optimism	1-4	2.8 (0.7)	2.9 (0.7)	2.9 (0.7)
Pacing				
Male	1-4	2.1 (0.6)	2.1 (0.6)	2.0 (0.6)
Female	1-4	2.2 (0.6)	2.3 (0.6)	2.4 (0.6)
Creative solution seeking				
Male	1-4	2.3 (0.6)	2.4 (0.6)	2.3 (0.07)
Female*	1-4	2.3 (0.6)	2.4 (0.6)	2.6 (0.06)
Dependency				
Accepting	1-4	1.8 (0.6)	1.8 (0.6)	1.7 (0.6)
Consideration	1-4	2.7 (0.6)	2.7 (0.6)	2.7 (0.6)

Results are presented as mean (SD) unless stated otherwise. *Results of the linear mixed models with $p < 0.002$ ($p < 0.05/21$, correction for multiple testing) were considered to be statistically significant and are printed in bold.

Conclusion: Despite clear improvements in back pain and health outcomes over 2 years, illness perceptions experienced and coping strategies applied by the patients showed little change in recently diagnosed axSpA patients. Further research is recommended why despite improved outcomes illness perceptions do not change, to investigate the impact of these unchanged illness perceptions and coping strategies on health outcomes and how these negative perceptions can be improved.

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THU0364 THE DIAGNOSTIC UTILITY OF THE RELATION BETWEEN MRI BONE MARROW EDEMA AND OTHER TYPES OF MRI LESIONS IN THE SACROILIAC JOINTS IN AXIAL SPONDYLOARTHRITIS

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Background: MRI detected bone marrow edema (BME) plays a central role in the ASAS (Assessment of Spondyloarthritis International Society) classification criteria for axial spondyloarthritis (axSpA)[1, 2]. However, BME in the sacroiliac joints (SIJs) is also present in other conditions[3-7].

Objectives: The aim was to investigate the diagnostic utility of MRI BME and its relation to different types of MRI SIJ lesions to separate patients with axSpA from persons with other conditions.

Methods: The MASH study is a prospective cross-sectional study of 204 participants, aged ≤ 45 yrs. The study included patients with axSpA (n=41), women with (n=46) and without (n=14) postpartum pain, patients with lumbar disc herniation (n=25), persons with hard physical labor (cleaning assistants) (n=25), long-distance runners (≥ 30 km/week) (n=23) and healthy men (n=29). Participants with pain should all have VAS pain > 2 (on a scale 0-10) for ≥ 2 months. Participants in the non-axSpA groups were not allowed to have any clinical SpA features or rheumatological conditions. Participants underwent clinical, laboratory and MRI examination (semi-coronal STIR and T1W sequences) of the SIJs. MRIs were evaluated for BME, erosion, fat, ankylosis, and sclerosis according to the SPARCC MRI definitions of lesions[8, 9] by two independent readers. In nine slices of the cartilaginous compartment each SIJ was separately assessed for the presence of BME in relation to joint space and each of the above-mentioned structural lesions (range of total score per patient: 0-18).

Results: The table shows the clinical characteristics of each group, the mean MRI scores and MRI cut-off levels for the concordant reads. BME located adjacent to joint space, adjacent to erosions and adjacent to fat were more frequent in patients with axSpA, but these lesions were also seen in the other study groups, mainly women with postpartum pain. When increasing amounts of lesions were required (higher cut-offs),

almost only AxSpA patients fulfilled the requirements. BME adjacent to sclerosis was most frequent in women with postpartum pain, whereas BME adjacent to ankylosis was only seen in patients with axSpA.

Conclusion: BME located adjacent to joint space, adjacent to erosion and adjacent to fat was most frequently, but not exclusively, occurring in patients with axSpA, whilst BME adjacent to sclerosis was most frequent in women with postpartum pain. Detailed analysis of lesions and their anatomical location may help differentiate axSpA from other conditions.

Abstract THU0364 –Table 1.

Clinical characteristics and relations between MRI BME and other MRI lesions							
	AxSpA (N=41)	Post-partum with pain (N=46)	Post-partum without pain (N=14)	Disc herniation (N=25)	Cleaning staff (N=26)	Long distance runners (N=23)	Healthy men (N=29)
Age (years)	31 31 (19; 44)	33 33 (26; 41) **	33 33 (27; 41)	35 37 (21; 43) **	39 39 (28; 45) ***	33 32 (22; 43)	31 30 (20; 45)
Male sex	26 (63)	0 (0) ***	0 (0) ***	11 (44)	0 (0) ***	18 (78)	29 (100) ***
HLA-B27 positive	33 (81)	5 (11) ***	1 (7) ***	0 (0) ***	0 (0) ***	1 (4) ***	4 (14) ***
CRP (mg/L)	11 6 (0.3; 58)	2 1 (0.3; 7) ***	2 1 (0.3; 13) **	2 1 (0.3; 14) ***	3 1 (0.3; 20) ***	1 0.4 (0.3; 8) ***	1 0.3 (0.3; 5) ***
Body mass index (kg/m ²)	23 23 (18; 32)	25 24 (17; 37)	23 21 (19; 32)	26 25 (20; 35) **	26 25 (21; 36) **	23 23 (19; 26)	25 25 (20; 31) ***
Symptom duration (years)	8 (6) 8 (1; 24)	1 (1) (0.3; 6)	NA	1 (1) 1 (0; 2; 4)	NA	NA	NA
Childbirths	1.7 2.0 (0; 2)	1.5 1.0 (1; 4)	1.9 2.0 (1; 3)	1.6 2.0 (0; 3)	2.5 3.0 (0; 5)	0.5 0 (0; 2)	NA
Low back pain (VAS, 0-10)	4 4 (0; 10)	2 6 (0; 10) **	0 0 (0; 3) ***	6 6 (0.3; 10) *	0 0 (0; 7) ***	0.2 0 (0; 2) ***	0.1 0 (0; 1) ***
BME adjacent to joint space	5 4 (0; 16)	2 1 (0; 13) **	0 0 (0; 6) **	0 0 (0; 2) ***	0 0 (0; 3) ***	0.2 0 (0; 2) ***	0.2 0 (0; 2) ***
BME adjacent to fat	1 0 (0; 10)	0.1 0 (0; 4) ***	0 0 (0; 1) *	0 0 (0; 9) ***	0 0 (0; 9) ***	0 0 (0; 9) ***	0 0 (0; 9) ***
BME adjacent to sclerosis	1 0 (0; 10)	0 0 (0; 13)	0 0 (0; 4) *	0 0 (0; 1) **	0 0 (0; 4) *	0 0 (0; 1) *	0 0 (0; 1) **
BME adjacent to erosion	2 1 (0; 14)	0 0 (0; 7) ***	0 0 (0; 9) **	0 0 (0; 9) ***	0 0 (0; 9) ***	0.1 0 (0; 2) ***	0 0 (0; 9) ***
BME adjacent to ankylosis	0.1 0 (0; 1)	0 0 (0; 1)	0 0 (0; 0)	0 0 (0; 0)	0 0 (0; 0)	0 0 (0; 0)	0 0 (0; 0)
BME adjacent to joint space	2.1 2.3 (2.56)	20 (44) 13 (28)	3 (21) 1 (7)	2 (8) 0	2 (8) 0	0 0	1 (3) 0
BME adjacent to fat	2.5 2.5 (9)	4 (9) 4 (9)	1 (7) 0	0 0	0 0	0 0	0 0
BME adjacent to sclerosis	2.1 2.3 (2.5)	13 (28) 6 (13)	2 (14) 1 (7)	0 0	1 (4) 1 (4)	0 0	0 0
BME adjacent to erosion	2.5 2.5 (11)	6 (13) 2 (4)	0 0	0 0	0 0	0 0	0 0
BME adjacent to ankylosis	2.1 2.1 (2.7)	11 (27) 1 (2)	0 0	0 0	0 0	0 0	0 0
BME adjacent to joint space	2.5 2.5 (4.10)	4 (10) 0	0 0	0 0	0 0	0 0	0 0
BME adjacent to fat	2.1 2.1 (2)	1 (2) 0	0 0	0 0	0 0	0 0	0 0
BME adjacent to sclerosis	2.1 2.1 (2)	1 (2) 0	0 0	0 0	0 0	0 0	0 0
BME adjacent to erosion	2.1 2.1 (2)	1 (2) 0	0 0	0 0	0 0	0 0	0 0
BME adjacent to ankylosis	2.1 2.1 (2)	1 (2) 0	0 0	0 0	0 0	0 0	0 0

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THU0365

THE IMPACT OF UVEITIS, PSORIASIS AND INFLAMMATORY BOWEL DISEASE ON MUSCULOSKELETAL DISEASE ACTIVITY AND FUNCTION IN AXIAL SPONDYLOARTHRITIS: A POPULATION-BASED ANALYSIS OF INSURANCE CLAIMS LINKED TO PATIENT SURVEY DATA

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Background: Uveitis, psoriasis and inflammatory bowel disease (IBD) are common in axial spondyloarthritis (axSpA) but data on their impact on activity of musculoskeletal manifestations and functional status in general are contradictory.

Objectives: The aim of this study was to assess the impact of uveitis, psoriasis and IBD on disease activity and functional status in a population-based cohort of patients with axSpA.

Methods: A stratified random sample of subjects with a diagnosis of axSpA (ICD-10 M45) was drawn from health insurance data in Germany. These patients received a questionnaire on disease-related, demographic and socioeconomic parameters. Age, sex, drug prescriptions and non-pharmacological treatment were retrieved from claims data and linked to the questionnaire data. Information on recent/current occurrence of uveitis, psoriasis and IBD (within one year) was obtained from claims data; in addition, information on history of uveitis, psoriasis and IBD was obtained from survey data. Patients with uveitis, psoriasis or IBD were compared to those without uveitis, psoriasis or IBD. Separate multivariable linear regression models were calculated to determine the effect of uveitis, psoriasis and IBD on disease activity and functional status after adjustment for other relevant parameters including treatment.

Abstract THU0365 –Table 1.

Table Results from multivariable linear regression models showing the association of psoriasis, inflammatory bowel disease and uveitis with disease activity (BASDAI) and functional impairment (BASFI) in patients with axial spondyloarthritis (N=1,729).

Recent psoriasis, inflammatory bowel disease, and uveitis (based on claims data)				
	Reference	BASDAI* β (95% CI)	BASFI** β (95% CI)	
Model 1a	Psoriasis, recently present	not present	0.07 (-0.27, 0.40)	0.30 (-0.09, 0.70)
Model 1b	Inflammatory bowel disease, recently present	not present	0.30 (-0.10, 0.71)	0.33 (-0.14, 0.80)
Model 1c	Uveitis, recently present	not present	-0.44 (-0.77, -0.10)	-0.38 (-0.77, 0.02)
History of psoriasis, inflammatory bowel disease, and uveitis (based on survey data)				
	Reference	BASDAI* β (95% CI)	BASFI** β (95% CI)	
Model 2a	Psoriasis, ever present	not present	0.31 (0.05, 0.58)	0.37 (0.05, 0.68)
Model 2b	Inflammatory bowel disease, ever present	not present	0.37 (0.01, 0.73)	0.35 (-0.07, 0.77)
Model 2c	Uveitis, ever present	not present	-0.10 (-0.31, 0.11)	-0.01 (-0.26, 0.24)

*Model adjusted for age, sex, body mass index, rheumatological care, smoking, suffering from stress, NSAIDs, bDMARDs, non-opioid analgesics, opioids, systemic steroids, physical therapy. **Model adjusted for age, sex, body mass index, rheumatological care, lack of exercise, smoking, suffering from stress, non-opioid analgesics, opioids, systemic steroids, physical therapy.

BASDAI, Bath Ankylosing Spondylitis Disease Activity Index; BASFI, Bath Ankylosing Spondylitis Functional Index; bDMARDs, biological disease-modifying anti-rheumatic drugs; NSAIDs, non-steroidal anti-inflammatory drugs.

Results: A total of 1,729 patients with axSpA were included in the analyses; mean age was 55.9 years and 46.1% were female. The prevalence was 9% (27%) for recent (ever) uveitis, 10% (15%) for recent (ever) psoriasis, and 6% (9%) for recent (ever) IBD. In 1.6% (6.9%) of the patients two of these conditions were recently (ever) present, and in 0% (0.5%) of the patients, all three conditions were recently (ever) present.

The multivariable linear regression analyses revealed that history of psoriasis was significantly associated with both higher level of disease activity and higher level of functional impairment. History of IBD was also associated with higher disease activity, whereas recent psoriasis or IBD showed no strong association with disease activity and functional status (Table). In contrast, history of uveitis showed no strong association with disease activity and functional status while recent uveitis was significantly associated with lower disease activity according to the BASDAI even after adjustment for treatment.

Conclusion: Disease activity and functional impairment are higher in axSpA patients with a history of psoriasis or IBD, whereas history of

uveitis does not have a major impact on activity of musculoskeletal manifestations and functional status in axSpA. However, recent uveitis showed a somewhat unexpected association with lower disease activity. The latter might be related to a higher likelihood of being treated with TNF inhibitors in the presence of uveitis.

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THU0366

MAGNETIC RESONANCE IMAGING IN COMPARISON WITH CONVENTIONAL RADIOGRAPHY FOR DETECTION OF STRUCTURAL CHANGES TYPICAL FOR SPA – DATA FROM THE ASSESSMENT OF SPONDYLOARTHRITIS INTERNATIONAL SOCIETY (ASAS) COHORT

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Background: In axial spondyloarthritis, magnetic resonance imaging (MRI) is useful for depicting active inflammatory lesions. The utility of MRI to display structural changes is not that well established.

Objectives: Comparison of MRI and conventional radiography of the sacroiliac joints (SIJs) for detection of structural lesions typical for axial spondyloarthritis (axSpA) in an international multireader exercise.

Methods: Patients from the ASAS Cohort with symptoms suggestive of axSpA and both radiographs and T1-weighted MRIs of SIJs available for central reading were included. SIJs radiographs were scored by 3 central readers according to the modified New York (mNY) criteria grading system. Structural damage on radiographs was defined as fulfillment of the radiographic mNY criterion (patient level) or presence of grade 2 sacroiliitis (single joint level) (majority decision). MRI scans were assessed for structural changes compatible with axSpA (global statement) and separate changes (erosion, sclerosis, periarticular fat metaplasia and ankylosis) by 7 central readers (majority decision). Absolute agreement between MRI and radiography and Kappa coefficient were determined.

Results: Overall, 199 patients (398 joints) were included, 149 (74.9%) had a diagnosis of axSpA. 102 (51.3%) had definite radiographic sacroiliitis, 65 (32.7%) had structural changes suggestive of SpA on MRI (global assessment). The absolute agreement between MRI and radiography was 69.3%, kappa - 0.39 (Table 1). Structural damage on radiographs often (48.1% of cases) could not be confirmed by MRI. Among structural lesions, erosions on MRI showed the best discriminative capacity regarding the structural damage on radiographs (Table 1).

Conclusion: Only modest agreement between MRI and conventional radiography in detection of structural changes typical for SpA in the SIJs was revealed; erosions on MRI showed the best agreement with the presence of definite structural damage on radiographs.

Abstract THU0366 –Table 1.

Table 1. Comparison of MRI with conventional radiographs for the detection of structural damage in the sacroiliac joints at the patient level (n=199)

		Radiographic sacroiliitis fulfilling the mNY criteria		Absolute agreement	Kappa value
		No (n=97)	Yes (n=102)		
Presence of structural lesions typical for SpA on MRI according to the global assessment	No (n=134)	85 (42.7%)	49 (24.6%)	69.3%	κ=0.39
	Yes (n=65)	12 (6.0%)	53 (26.6%)		
Presence of any structural changes (erosions, sclerosis, ankylosis or fat metaplasia) on MRI	No (n=120)	77 (38.7%)	43 (21.6%)	69.3%	κ=0.37
	Yes (n=79)	20 (10.1%)	59 (29.6%)		
Presence of erosions or sclerosis or ankylosis on MRI	No (n=124)	79 (39.7%)	45 (22.6%)	68.3%	κ=0.37
	Yes (n=75)	18 (9.0%)	57 (28.6%)		
Presence of erosions on MRI	No (n=141)	85 (42.7%)	56 (28.1%)	65.8%	κ=0.32
	Yes (n=58)	12 (6.0%)	46 (24.1%)		
Presence of sclerosis on MRI	No (n=163)	90 (45.2%)	73 (36.7%)	59.8%	κ=0.21
	Yes (n=36)	7 (3.5%)	29 (14.6%)		
Presence of ankylosis on MRI	No (n=195)	97 (48.7%)	98 (49.2%)	50.8%	κ=0.04
	Yes (n=4)	0 (0.0%)	4 (2.0%)		
Presence of fat metaplasia on MRI	No (n=157)	90 (45.2%)	67 (33.7%)	62.8%	κ=0.27
	Yes (n=42)	7 (3.5%)	35 (17.6%)		

mNY criteria – modified New York Criteria for ankylosing spondylitis; SpA – spondyloarthritis; MRI – magnetic resonance imaging

Abstract THU0366 –Table 2.

Table 2. Comparison of MRI with conventional radiographs for the detection of structural damage in the sacroiliac joints at the single joint level (n=398)

		Definite radiographic sacroiliitis (grade ≥2)		Absolute agreement	Kappa value
		No (n=209)	Yes (n=199)		
Presence of any structural changes (erosions, sclerosis, ankylosis or fat metaplasia) on MRI	No (n=272)	184 (46.2%)	88 (22.1%)	71.6%	κ=0.42
	Yes (n=126)	25 (6.3%)	101 (25.4%)		
Presence of erosions or sclerosis or ankylosis on MRI	No (n=283)	187 (47.0%)	96 (24.1%)	70.4%	κ=0.39
	Yes (n=115)	22 (5.5%)	93 (23.4%)		
Presence of erosions on MRI	No (n=312)	192 (48.2%)	120 (30.2%)	65.6%	κ=0.29
	Yes (n=86)	17 (4.3%)	69 (17.3%)		
Presence of sclerosis on MRI	No (n=345)	201 (50.5%)	144 (36.2%)	61.8%	κ=0.21
	Yes (n=53)	8 (2.0%)	45 (11.3%)		
Presence of ankylosis on MRI	No (n=393)	209 (52.5%)	184 (46.2%)	53.8%	κ=0.03
	Yes (n=5)	0 (0.0%)	5 (1.3%)		
Presence of fat metaplasia on MRI	No (n=330)	195 (49.0%)	135 (33.9%)	62.6%	κ=0.23
	Yes (n=68)	14 (3.5%)	54 (13.6%)		

MRI – magnetic resonance imaging

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