

Abstract OP0238 – Table 1

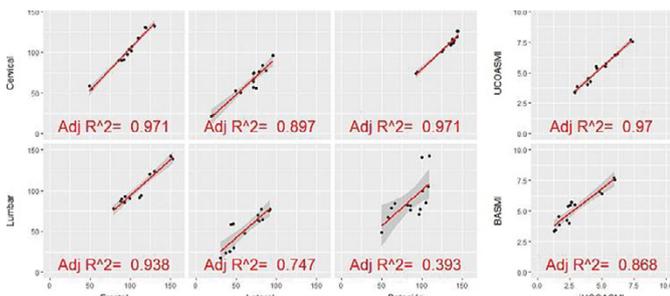
	Cervical			Lumbar			Indexes		
	Frontal	Lateral	Rotation	Frontal	Lateral	Rotation	iUCOASMI	UCOASMI	BASMI
Test	104.7 (19.7)	60.9 (17.0)	111.3 (19.0)	112.5 (25.6)	62.5 (18.3)	89.2 (26.3)	4.9 (1.2)	4.7 (1.6)	2.6 (1.4)
Retest	108.1 (20.9) β	63.5 (18.7) α	110.2 (19.0) β	113.5 (25.3) β	64.3 (18.5) β	88.3 (23.0) β	5.0 (1.3) α	–	–
2 Days	104.6 (18.9) γ	62.0 (18.3) α	111.9 (16.1) γ	112.5 (25.6) β	61.7 (18.8) β	88.9 (23.8) γ	5.0 (1.2) β	4.9 (1.5) α	2.7 (1.4) β

of the patient. It could be a sensitive, flexible and cheap technology, useful for assessing mobility in AxSpA, but validation studies are needed.

Objectives: To assess reliability and validity of inertial sensors for measuring spinal mobility in patients with axSpA.

Methods: 14 subjects: 7 patients with axSpA (5 male and 2 female, age 51.4±6.7 years, evolution time 25.4±11.3 years, 85.7% B27 positive) and a control group of 7 healthy individuals matched in gender and age were recruited. Cervical and lumbar movements were evaluated using 3 IMU sensors (located at forehead, D3 and L4) and a 3D motion capture system synchronously. A test/retest was performed at 5 minutes in the same day with the IMUs and in two days with both systems. Measurements of metrology, BASMI and UCOASMI indices were obtained. An index, iUCOASMI, was calculated using the same measurements used for UCOASMI, but obtained by inertial sensors.

Results: Table shows mean values (SD) for each range of movement expressed in degrees. BASMI, UCOASMI and iUCOASMI indexes are also included. Intraclass correlation coefficient (ICC) is indicated as α : >0.98 – Excellent, β : 0.95–0.98 – Very good and γ : 0.7–0.95 – Good, δ : <0.7 – Bad. RMSE error was less than 10° for all measures. There was good correlation ($p < 0.01$) between iUCOASMI with BASFI, BASG, UCOASMI and BASMI. Graph shows results of linear regression between measures obtained with both system (for example: cervical frontal flexion obtained by motion capture and IMUs have a R^2 of 0.97) and between iUCOASMI with UCOASMI and BASMI.



Conclusions: The IMU system measured range of movement, showing good ICC both in the same day and in the two days test/retest. The iUCOASMI, has also shown an excellent correlation with UCOASMI, and with BASMI. Therefore, these kind of systems, based on IMU, may be useful for analyzing spinal mobility in patients with axSpA in a more accurate and reliable way compared with conventional metrology, and more flexible and cheap than other advanced systems, improving their practical applicability.

References:

[1] Validation of a new objective index to measure spinal mobility: the University of Cordoba Ankylosing Spondylitis Metrology Index (UCOASMI). Garrido-Castro JL, et al. *Rheumatol Int.* 2014 Mar;34(3):401–6.

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OP0239 HISTOLOGICAL FEATURES OF JOINT AND COLONIC INFLAMMATION IN INFLAMMATORY BOWEL DISEASE PATIENTS TREATED WITH ANTI-TNF

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Background: New onset of joint inflammation in patients under anti-TNF-alpha for inflammatory bowel disease (IBD) has been previously described. However, histological characterization of synovial and bowel compartments has not been reported so far.

Objectives: Aim of the study was to evaluate the histological characteristics of paired synovial (ST) and colonic tissues in IBD patients under TNF-alpha blockers.

Methods: Consecutive IBD patients without history of co-existing joint involvement who developed peripheral arthritis under TNF-alpha blockers, were prospectively enrolled. Each patient underwent rheumatological evaluation and ultrasound (US) assessment (using Gray scale for synovial hypertrophy and Power Doppler Signal) of the affected joints. Each patient underwent US guided ST biopsy of the knee, following a standardized procedure¹ and colonoscopy with mucosal biopsies. Each ST and colonic paired sample was stained through immunohistochemistry (IHC) for CD68, CD21, CD20, CD3 and CD117². H&E staining was performed for Paneth cells identification. Clinical and immunological parameters [Anti-citrullinated peptides antibodies (ACPA), IgM-Rheumatoid Factor (RF) and IgA-RF respectively] were collected for each patient.

Results: 10 patients with IBD [46.0±9.7 years old, 13.2±9.9 years of disease duration, 2.5±1.6 years of TNF-alpha blockers exposure, 6 with Crohn's Disease and 4 with Ulcerative Colitis respectively] were studied. All patients were negative for ACPA, IgM-RF or IgA-RF and 4 patients were under Methorexate therapy. 5 (50.0%) patients showed endoscopic and histologically proven inflammation of colonic mucosa. Moreover, IHC revealed that 6 (60.0%) patients had diffuse and 4 (40.0%) had follicular synovitis, respectively. In particular, there was a direct correlation between CD68⁺, CD21⁺, CD3⁺, CD20⁺ and CD117⁺ cells distribution in paired ST and gut tissues in the whole cohort ($p < 0.05$). No significant differences in terms of disease duration ($p = 0.48$), TNF-alpha blockers exposure time ($p = 0.29$), ESR ($p = 0.26$) and CRP ($p = 0.91$) values were found comparing patients with follicular and diffuse synovitis respectively.

Conclusions: Our findings suggest that patients with IBD may develop histologically proven synovitis during TNF-alpha treatment, showing similar histological features in terms of CD68⁺, CD21⁺, CD20⁺, CD3⁺ and CD117⁺ cells between synovial and colonic compartments. Molecular mechanisms triggered by TNF-alpha blockers leading to joint inflammation have to be clarified.

References:

[1] van de Sande MJT et al. *Ann Rheum Dis* 2011.

[2] Alivernini S. et al. *Nat Communications* 2016.

Disclosure of Interest: None declared

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OP0240 HOW STRONG ARE THE ASSOCIATIONS OF SPONDYLOARTHRITIS-RELATED COMORBIDITIES WITH ANKYLOSING SPONDYLITIS, PSORIATIC ARTHRITIS AND UNDIFFERENTIATED SPONDYLOARTHRITIS? A REGISTER-BASED STUDY FROM SWEDEN

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Background: Spondyloarthritis (SpA), including ankylosing spondylitis (AS), psoriatic arthritis (PsA) and undifferentiated SpA (uSpA), is a cluster of rheumatic diseases with some common genetic risk factors. These genetic risk factors are likely to result in associations of varying degree with SpA-related comorbidities such as inflammatory bowel disease (IBD), psoriasis and anterior uveitis. There

Abstract OP0240 – Table 1. Prevalence (%) and corresponding Prevalence Ratio (PR) of SpA-related comorbidities in AS, PsA and uSpA

	AS cases n (%)	PR (95% CI) (AS: GP)	PsA cases n (%)	PR (95% CI) (PsA: GP)	uSpA cases n (%)	PR (95% CI) (uSpA: GP)
Females, n (%)	1217 (31.3)		4772 (54.8)		1503 (56.4)	
Age, mean ±SD	51.1±12.7		53.9±13.5		46.1±12.8	
IBD	350 (9.0)	9.3 (7.7–11.2)	180 (2.1)	1.9 (1.6–2.3)	139 (5.2)	5.2 (4.1–6.6)
– Crohn's disease	170 (4.4)	11.6 (8.7–15.4)	78 (0.9)	2.2 (1.7–2.9)	62 (2.3)	6.5 (4.4–9.6)
– Ulcerative colitis	180 (4.6)	7.8 (6.2–10.0)	102 (1.2)	1.8 (1.4–2.3)	77 (2.9)	4.4 (3.3–6.1)
Anterior uveitis	819 (21.1)	44.8 (35.7–56.3)	145 (1.7)	3.8 (3.1–4.8)	351 (13.2)	32.4 (24.1–43.6)
Psoriasis	85 (2.2)	2.7 (2.0–3.5)	NA	NA	78 (2.9)	3.2 (2.4–4.3)
AV block	39 (1.0)	5.8 (3.6–9.4)	30 (0.3)	1.6 (1.0–2.4)	13 (0.5)	4.6 (2.1–10.0)
Aortic regurgitation*	55 (1.4)	4.7 (3.2–6.9)	41 (0.5)	1.7 (1.2–2.4)	11 (0.4)	3.0 (1.4–6.4)

AV, atrioventricular; NA, not applicable. *Aortic regurgitation includes both ICD codes for aortic regurgitation and procedure codes for aortic valve surgery.

is also a known association between AS and conduction disturbances and aortic regurgitation. Comparative analyses in the same setting of the strengths of these associations with AS, PsA and uSpA are scarce.

Objectives: To assess the strengths of the associations of different SpA-related comorbidities with a diagnosis of AS, PsA and uSpA.

Methods: All patients, aged ≥ 18 years, with AS (n=3884), PsA (n=8706) and uSpA (n=2665) were identified 2001 through 2005, according to specified ICD codes from the Swedish Patient Register. The register contains diagnoses from all visits in inpatient and non-primary outpatient care. Each patient was matched by year of birth, sex and county to five general population (GP) controls identified in the Population Register. Occurrence of SpA-related comorbidities prior to 1 January 2006 were also retrieved from the Swedish Patient Register. Number and proportion of cases (n (%)) with a recorded SpA-related comorbidity prior to 1 January 2006 and corresponding prevalence ratio (PR) with 95% confidence interval (CI) were calculated, overall and stratified for sex.

Results: PRs for SpA-related comorbidities were significantly elevated in all SpA subtypes compared to their matched GP controls (Table). PRs were substantially elevated in AS, intermediately elevated in uSpA, whereas only moderately increased in PsA. The results were similar in the sex-stratified analyses (not shown).

Conclusions: The strongest associations of SpA-related comorbidities were seen with AS, closely followed by uSpA, compatible with a substantial shared etiology and phenotypical expression for patients given these two diagnoses, whereas the associations between PsA and the SpA-related comorbidities were considerably weaker.

Disclosure of Interest: None declared

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OP0241 ERAP1 IS A SUSCEPTIBILITY FACTOR FOR EARLY AXIAL SPONDYLOARTHRITIS MEETING THE ASAS CLASSIFICATION CRITERIA: RESULTS FROM THE DESIR AND SPACE COHORTS

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Background: Genetic research in axSpA is performed in patients with longstanding ankylosing spondylitis (AS). Early axial spondyloarthritis (axSpA) is a diverse patient group in which a minority of the patients have AS. Therefore, it is not known if recently identified genetic risk factors for AS are also risk factors for early axSpA.

Objectives: To evaluate if ERAP1 and HLA-B*4001 are susceptibility factors for early axSpA.

Methods: Patients with early axSpA meeting the ASAS classification criteria from the SPACE cohort (inclusion criteria: back pain for ≥ 3 months, ≤ 2 years, onset < 45 years) and the DESIR cohort (inclusion criteria: inflammatory back pain for ≥ 3 months, ≤ 3 years, age < 50) were typed for two well established AS genetic risk factors: ERAP1 SNPs rs30187 (susceptibility), rs17482078 (protective) and rs10050860 (neutral) and HLA-B*4001. Analysis of weaker AS risk factors was limited by sample size. For ERAP1, genotyped Dutch healthy controls (n=1085) and published French controls¹ were used as controls. For HLA-B*4001 healthy blood bank donors from the Netherlands (n=5584) and France (n=10177) were used as controls.

Results: In 486 DESIR patients (mean age 32.5 (SD 8.6); 50% male; 84% HLA-B27+; 18% X-SI+) and 144 SPACE patients (mean age 29.5 (SD 8); 51% male; 88% HLA-B27+; 24% X-SI+) ERAP1 SNP rs30187 was more common than in controls (OR 1.2, p=0.01 in meta-analysis; table 1). rs17482078 and rs10050860 were negatively associated with early axSpA (both 0.7 (0.6–0.9) p<0.01 in meta-analysis). Although both cohorts were sufficiently powered, HLA-B*4001 was not positively associated with early axSpA (OR 0.6 (0.4–0.9) in meta-analysis).

Table 1. Minor allele frequency and odds ratio of ERAP1 SNPs in SPACE and DESIR compared with Dutch and French controls respectively.

SNP	Risk allele	SPACE		DESIR		Meta-analysis	
		n=244	Dutch controls n=1085	n=486	French controls* n=384	OR (95% CI)	OR (95% CI)
rs30187	T	0.38	0.32	1.2 (1.0-1.6)	0.41	0.37	1.2 (1.0-1.5)
rs17482078	T	0.14	0.21	0.6 (0.5-0.9)	0.18	0.22	0.7 (0.6-0.9) p<0.001
rs10050860	T	0.15	0.22	0.6 (0.5-0.9)	0.18	0.23	0.8 (0.6-1.0) 0.7 (0.6-0.9) p<0.001

* Calculated from published data [1]

ERAP1: endoplasmic reticulum aminopeptidase 1

Conclusions: ERAP1 rs30187 is a genetic risk factor for early axSpA. To our knowledge this is the first report of genetic risk factor research in early axSpA patients meeting the ASAS criteria. Larger cohorts are needed to study additional AS risk factors.

References:

[1] Kadi A, Izac B, Said-Nahal R, Leboime A, Van Praet L, de Vlam K, et al. Investigating the genetic association between ERAP1 and spondyloarthritis. *Ann Rheum Dis.* 2013;72(4):608–13.

Disclosure of Interest: None declared

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OP0242 HEALTH-RELATED QUALITY OF LIFE IMPROVED ONLY SLIGHTLY ALTHOUGH DISEASE ACTIVITY DECREASED OVER 3 YEARS IN EARLY AXIAL SPONDYLOARTHRITIS: 442 PATIENTS FROM THE DESIR COHORT

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Background: Current guidelines emphasize Health-related Quality of life (HRQoL) as a priority in health care but the link with disease activity is incomplete.

Objectives: The objective was to describe in patients with early axial spondyloarthritis (axSpA) the evolution of SF36 and of ASDAS-CRP over a 3 years follow up.

Methods: DESIR is an ongoing prospective, multicenter, longitudinal, observational French cohort (1). Patients had inflammatory back pain of more than 3 months and less than 3 years suggestive of axSpA. For our analysis, only patients with no missing data for MCS and PCS SF36 values during the first 3 years were included. HRQoL was assessed by the SF36 questionnaire and its 2 subscales (scored 0–100 with higher scores indicating better status): the physical composite score (PCS) including physical function, physical role, bodily pain and general health (GH) and the mental composite score (MCS) including mental health (MH), emotional role, social function and vitality. Disease activity was assessed by the ASDAS-CRP. Each outcome was assessed at baseline, 6 months, 12 months, 24 months and 36 months. The mean and median outcomes were calculated at each time-point and comparisons used ANOVA on repeated data. Baseline predictive factors associated with worse SF36 scores (lower half of mean values over 3 years) were identified by univariate then multivariate logistic regression, among the baseline variables age, gender, educational level, work status, smoking, HLAB27, radiological sacroiliitis, extra-articular manifestations (uveitis, psoriasis, inflammatory bowel disease) and ASDAS-CRP.

Results: In all, 442 patients were analyzed: at baseline, mean age was 34.2±8.6 years; mean disease duration was 18.6±10.7 months; 239 (54%) were females, 274 (62%) had HLAB27 and 124 (28%) had radiological sacroiliitis. At baseline, mean PCS, MCS and ASDAS-CRP were respectively 40.5±9.2, 40.4±11.0 and 2.6±1.0. Over 3 years, although mean ASDAS-CRP improved, HRQoL improved only slightly (Figure). All the SF36 subdomains improved (all p<0.001), though GH and MH improved less (data not shown). In univariate analysis, lower educational level, not being in a white collar job, younger age and higher ASDAS-CRP were significantly associated to lower HRQoL over 3 years. In multivariate analysis, only higher baseline ASDAS-CRP (odds ratio=0.49 [95% confidence interval 0.29; 0.79]) was associated to lower HRQoL.

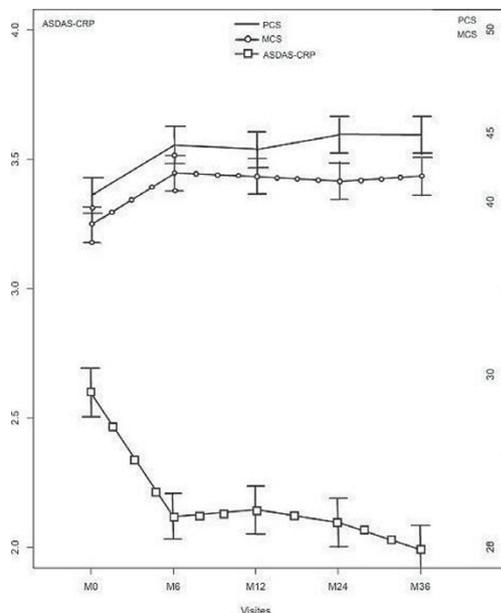


Figure: Evolution of mean MCS, PCS and ASDAS-CRP over 3 years

Conclusions: In early axSpA, HRQoL was affected similarly for the physical and mental components and only slightly improved over 3 years. In contrast, ASDAS-CRP improved substantially. However, ASDAS-CRP was a stronger driver of HRQoL than demographic characteristics. The drivers of HRQoL in inflammatory rheumatic disorders should be further explored.

References:

[1] Dougados M. et al. Clinical presentation of patients suffering from recent onset chronic inflammatory back pain suggestive of spondyloarthritis: The DESIR cohort. *Joint Bone Spine.* 2015;82(5):345–51.

Disclosure of Interest: None declared

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