and this behavior does not seem to be influenced by the body composition and muscle performance. The main determinant for this gait pattern remains an open question.

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THU0399

DEVELOPMENT OF AN OPTIMIZED ONLINE SELF-REFERRAL TOOL FOR EARLY RECOGNITION OF PATIENTS WITH AXIAL SPONDYLOARTHRITIS (AXSPA) – DATA FROM THE 'OPTIREF'-STUDY

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Background: One of the major reasons for a long diagnostic delay in axial spondyloarthritis (axSpA) is the late referral of patients by primary care physicians dealing with patients with chronic back pain. We developed and implemented an online self-referral tool (www.bechterew-check.de), which gave access to a rheumatological consultation if patients declared suffering from chronic back pain (≥ 3 months) with a symptom onset ≤ 45 years of age, and at least one feature indicative of SpA. In the prospective "Identification of the Optimal Referral Strategy for Early Diagnosis of Axial Spondyloarthritis (OptiRef) Study" we could diagnose axSpA in 19% of the self-referred patients [1].

Objectives: To optimize the online-self-referral tool for recognition of patients with high suspicion of axSpA in order to increase the specificity by keeping the high level of sensitivity.

Methods: 181 patients who had fulfilled the online self-referral strategy were included and underwent a standardized rheumatology examination. The final diagnosis of axial SpA/no axial SpA by the rheumatologist served as the gold standard. The performance of all possible combinations of the referral parameters (13 parameters in total including 5 features of inflammatory back pain (IBP) and 8 other SpA features) added to both stem parameters (chronic back pain starting at age of ≤ 45 years) was tested. In addition, the following pre-specified combinations were evaluated: 1) ≥ 1 IBP parameter AND ≥ 1 other SpA parameter, 2) ≥ 1 IBP parameter OR ≥ 1 other SpA parameter. For all combinations, a sensitivity, a specificity, positive and negative predictive values (PPV and NPV), as well as a positive and negative likelihood ratio (LR+ and LR-) were calculated. We targeted the maximal specificity by acceptable sensitivity (defined as $\geq 90\%$ of the original strategy).

Results: For 163 of the included patients, full data of the online questionnaire as well as of rheumatology examination including the final diagnosis was available. 31 (19%) of them were diagnosed with axial SpA. Raising the threshold of the number of positive parameters (table 1) resulted in a quick drop of the sensitivity. According to the pre-defined selection criterion, only a strategy with any four positive parameters would be acceptable. An analysis of combined strategies (IBP parameters and/or other SpA parameters) resulted into identification of a strategy with an improved performance: a combination of ≥ 2 IBP parameters with ≥ 1 other SpA parameters (in addition to both stem parameters) showed a sensitivity of 90% (28/31), a specificity of 27% (35/132), a PPV of 22% (28/125), a NPV of 92% (35/38), LR+ of 1.23 and LR- of 0.36. Thus, identifying 28 of 31 patients with axSpA would have been possible after the assessment of 125 patients instead of 163.

Conclusion: The data-driven optimized online self-referral tool (figure 1) requires the following parameters to be positive: chronic back pain (≥ 3 months) plus back pain onset before 45 years of age plus ≥ 2 IBP parameters plus ≥ 1 other SpA feature. The performance of this tool should be confirmed in a prospective study.

Abstract THU0399 – Table 1.

Table 1: Performance of self-referral strategies based on combinations of SpA parameters in addition to the stem parameters (chronic back pain starting at age of ≤ 45 years).

Number of fulfilled criteria* (2)	Number of patients	PPV	NPV	Sensitivity	Specificity	LR+	LR-
1**	163	0.19 (31/163)		1.00 (31/31)			
2	158	0.20 (31/158)	1.00 (5/5)	1.00 (31/31)	0.04 (5/132)	1.04	0.00
3	147	0.21 (31/147)	1.00 (16/16)	1.00 (31/31)	0.12 (16/132)	1.14	0.00
4	128	0.22 (28/128)	0.91 (32/35)	0.90 (28/31)	0.24 (32/132)	1.19	0.40
5	114	0.23 (26/114)	0.90 (44/49)	0.84 (26/31)	0.33 (44/132)	1.26	0.48
6	74	0.31 (23/74)	0.91 (81/89)	0.74 (23/31)	0.61 (81/132)	1.92	0.42
7	48	0.38 (18/48)	0.89 (102/115)	0.58 (18/31)	0.77 (102/132)	2.55	0.54
8	27	0.48 (13/27)	0.87 (110/136)	0.42 (13/31)	0.89 (110/132)	3.95	0.65
9	17	0.59 (10/17)	0.86 (125/146)	0.32 (10/31)	0.95 (125/132)	6.08	0.72
10	7	0.43 (3/7)	0.82 (120/156)	0.10 (3/31)	0.97 (120/132)	3.19	0.93
11	1	1.00 (1/1)	0.81 (132/162)	0.03 (1/31)	1.00 (132/132)	-	0.97
12	1	1.00 (1/1)	0.81 (132/162)	0.03 (1/31)	1.00 (132/132)	-	0.97
13	1	1.00 (1/1)	0.81 (132/162)	0.03 (1/31)	1.00 (132/132)	-	0.97

*Criteria: insidious onset; improving with exercise, no improvement with rest; waking up in the second half of the night; morning stiffness ≥ 30 minutes; alternating buttock pain; good response to NSAIDs; arthritis/enthesitis ever; HLA-B27 positive; uveitis; psoriasis; inflammatory bowel disease; SpA family history; elevated acute phase reactants.

**The original strategy, reference for the calculation of the performance of all other strategies

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- Proft F, et al. EULAR 2018, Abstract THU0230.

1	Does your back pain last 3 months or longer?	No ☐ Yes ☐
2	Did your back pain start prior to 45 years of age?	No ☐ Yes ☐
3	What are the characteristics of your back pain?	
	• The back pain onset was rather slow and was not related to a trauma	No ☐ Yes ☐
	• I suffer from stiffness in my back of 30 minutes or longer upon getting up in the morning	No ☐ Yes ☐
	• Movement or exercises (but not rest) improve my back pain	No ☐ Yes ☐
	• I wake up sometimes in the night (especially 2nd half) because of back pain	No ☐ Yes ☐
	• I have or I had alternating (flipping from side to side) pain in my buttocks	No ☐ Yes ☐
4	Other signs and symptoms which might indicate an inflammatory nature of the back pain:	
	• I took a nonsteroidal anti-inflammatory drug (such as Diclofenac or Ibuprofen) because of back pain, and pain was completely relieved or was much better after the drug intake	No ☐ Yes ☐
	• I have / had joint pain with swelling and/or inflammation in the areas of tendons insertion to the bone (e.g., heels).	No ☐ Yes ☐
	• The genetic marker HLA-B27 has been tested in my blood already and the result was „positive“	No ☐ Yes ☐
	• I have / had elevated markers of inflammation in the blood (C-reactive protein or erythrocyte sedimentation rate), which are unlikely to be explained by other reasons (such as infections)	No ☐ Yes ☐
	• I suffer from psoriasis	No ☐ Yes ☐
	• I suffer from inflammatory bowel disease (Crohn's disease or ulcerative colitis)	No ☐ Yes ☐
	• I suffer / suffered from (iritis)	No ☐ Yes ☐
	• One or several of my direct relatives suffer / suffered from ankylosing spondylitis, psoriasis or inflammatory bowel disease (Crohn's disease or ulcerative colitis)	No ☐ Yes ☐

The strategy is fulfilled if 1 + 2 + ≥ 2 questions in the 3 + ≥ 1 question in the 4 are answered with yes.

Abstract THU0399 – Figure 1. The data-driven optimized self-referral strategy.

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THU0400

COMPLICATIONS OF ANTERIOR UVEITIS ASSOCIATED WITH HLA-B27 ANTIGEN IN PATIENTS WITH AND WITHOUT SPONDYLOARTHRITIS

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Background: HLA-B27- associated anterior uveitis (AU) can be an isolated disease or part of a systemic inflammatory process, such as spondyloarthritis. Differences in the outcome of uveitis with and without spondyloarthritis are still under research.

Objectives: To compare the incidence of complications in HLA-B27- associated anterior uveitis patients with and without spondyloarthritis (SpA).

Methods: 189 patients with HLA-B27- associated anterior uveitis were observed in Research Institute of Eye Disease for 10 years. The pts were underwent standard ophthalmological examination, and, if necessary, computer perimetry, ultrasound examination (B-scan), optical coherence tomography of the retina and optic nerve (OCT), fluorescence fundus angiography (FAGD) and electrophysiological studies (EFI). All pts were examined for clinical and imaging signs of SpA: inflammatory back pain, arthritis, enthesitis, sacroiliitis.

Different variants of SpA were diagnosed in 108 pts: ankylosing spondylitis – in 48 (44.4%), reactive arthritis – in 9 (8.3%), psoriatic arthritis – in 9 (8.3%), inflammatory bowel disease – in 2(1.9%), juvenile SpA – in 4 (3.7%), undifferentiated SpA – in 36 (33.3%). In 81 pts SpA was not confirmed: 11 had a viral infection (13.5%), 7- bacterial infection (8.6%), 1 (1.2%)-multiple sclerosis, 3 (3.7%) -psoriasis, 59 (72.8%)- idiopathic AU.

Results: Complications were identified in 74 of 108 (68.5%) pts – 147 eyes in SpA-group and in 39 of 81(48.1%) – 110 eyes in group without SpA. Cataract was identified in 89 (60.5%) of 147 eyes in SpA-group and in 35(1.8%) of 110 eyes in group without SpA, $p=0.0001$; glaucoma – in 28 of 147 eyes (19.0%) in SpA-group and 8 of 110 eyes (7.3%) in group without SpA, $p=0.005$; synechia – in 24(16.3%) and in 8 (7.3%) respectively, $p=0.021$; vitreous destruction – in 59(40.1%) and in 26 (23.6%), $p=0.005$. Maculopathy, optic atrophy, corneal degeneration, panuveitis were observed more often in SpA-group, but the differences were not significant. Combinations of several complications were detected in 59 (40.1%) in SpA-group and in 31 (28.2%) in group without SpA, $p=0.03$.

Conclusion: Complications of HLA-B27- associated AU were identified more often in pts with SpA than without SpA (the majority of which was idiopathic AU). It confirms the effect of systemic inflammatory disease on the severity of uveitis.

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THU0401

WOMEN WITH SPONDYLOARTHROPATHIES HAVE HIGHER DISEASE BURDEN ACCORDING TO RAPID3 COMPARED TO MEN, BUT THERE IS NO GENDER DIFFERENCES ACCORDING TO A MODIFIED ASDAS-CRP

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Background: Women with Spondyloarthropathies (SpA) may be late or under-diagnoses due to a less typical presentation than in men, with a more peripheral clinical manifestation. Although some studies have suggested a higher burden of disease in women^{1, 2}, others did not confirm these differences^{3, 4}. In addition, women present higher scores for pain and fatigue, which may influence the BASDAI (Bath Ankylosing Spondylitis Disease Activity Index) score⁵.

Objectives: To evaluate possible gender differences in clinical presentation and disease severity in men and women with SpA in routine care at one academic center.

Methods: All patients complete a Multidimensional Health-Assessment Questionnaire (MDHAQ) as part of their routine care. It includes physical function (FN) (0-10), three 0-10 visual analogue scales (VAS) for pain (PN), patient global estimate (PATGL), and fatigue (FT), RADAI self-reported painful joints, and morning stiffness (MS). Patients with SpA (ICD10 codes) were included: ankylosing spondylitis (AS), psoriatic arthritis (PsA), undifferentiated, and inflammatory bowel disease associated (IBD). Data extracted were clinical presentation, treatment and laboratory tests including C-reactive protein (CRP), HLA-B27 (Human leukocyte antigen), and erythrocyte sedimentation rate (ESR). Composite indices, RAPID3 (0-30) previously validated in SpA, as the sum of 0-10 scores for FN, PN, and PATGL, and a modified ASDAS-crp using a "back pain" score derived from RADAI neck, back and hips; a "peripheral pain" score derived from the remaining RADAI joints; and MS in minutes were also included. Demographic and clinical characteristics were compared according to gender.

Results: 190 patients were included, 60% males and 40% females, with no differences in age, disease duration, and treatment. Men had significantly more frequent inflammatory back pain. Patient global assessment and pain scores were significantly higher in women versus men resulting in a higher RAPID3 (moderate disease severity in both groups). Axial, peripheral pain, morning stiffness and laboratory data did not show differences by gender, and as a result ASDAS-CRP was similar between men and women, with a value corresponding to moderate disease activity (Table).

Abstract THU0401 – Table 1. Demographic and clinical characteristics of patients with SpA by gender. Data as median (IQR) unless otherwise specified (* $p<0.05$)

	Men N=113	Women N=77
Age (yrs), mean (SD)	45.2 (14.4)	47.0 (15.3)
Self-reported race/ethnicity, %	61/15/13/11	50/20/13/17
White/Black/Hispanic/Others		
Disease duration, (yrs)	6.1 (1.4-11)	5.2 (2.1-9.3)
SpA subgroup, %:	57/24/16/3	36/29/31/4*
AS/PsA/Undifferentiated/IBD		
Peripheral arthritis, %	67%	69%
Inflammatory back pain, %	78%	63%*
PROs-MDHAQ		
PATGL	2.5 (1.0-5.0)	5.0 (2.0-7.0)*
Axial pain-RADAI (neck, back and hips)	4 (0.8-5.0)	3.3 (1.7-5.8)
Peripheral pain-RADAI	0.9 (0.2-1.9)	0.9 (0-2.6)
Total PN	3.0 (1.0-6.0)	6.0 (2.0-7.5)*
MS (min)	30 (15-60)	37.5 (15-120)
Fatigue	2.0 (0-6.0)	5 (2.0-8.0)*
Laboratory Data		
HLA-B27 positive, %	66.7%	67.4%
CRP (mg/L)	5 (5-15.6)	5 (5-15.6)
ESR (mm/h)	12 (4-29)	19.5 (9-33)
Composite index, mean (SD)		
RAPID3	7.7 (6.9)	10.9 (7.5)*
Modified ASDAS-CRP	1.8 (0.9)	1.9 (0.9)

Conclusion: Women with SpA have higher RAPID3 scores than men, in contrast to a modified ASDAS-CRP based on scores from the MDHAQ which did not show gender differences. These data suggest that RAPID3 scores in women may be attributable in part to a gender bias rather than clinical severity and a careful interpretation in the context of gender is necessary.

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THU0402

CONTRIBUTION OF THE EOS IMAGING SYSTEM IN ASSESSING PELVIC AND SPINAL DEFORMITIES IN SPONDYLOARTHRITIS

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Background: The severity of Spondyloarthritis (SA) lies mainly in the progressive ankylosis of the axial skeleton and the deformations generated. The means of assessing the spinal static disorders in SA are currently subjective and difficult to reproduce. Multidisciplinary collaboration has led to the development of a new biplane low dose radiology technology named EOS. It allows a simultaneous acquisition of the axial skeleton and the lower limbs in a standard standing position.

Objectives: We aimed to assess pelvic and spinal parameters and spinal stature in patients with SA using the EOS system.

Methods: This is a prospective cross-sectional study conducted over a 10-month period (January-October 2018) involving 50 patients with SA meeting the criteria of Assessment of SpondyloArthritis International Society. An entire body EOS examination of the vertebral column in a standardized standing position was performed in all patients. Pelvic parameters measured by the EOS system were pelvic incidence (PI: normal value: