THU0230

PERFORMANCE OF AN ONLINE SELF-REFERRAL QUESTIONNAIRE COMPARED TO A PHYSICIAN-BASED REFERRAL APPROACH TO IDENTIFY PATIENTS WITH A HIGH PROBABILITY OF AXIAL SPONDYLOARTHRITIS: RESULTS FROM THE OPTIREF STUDY

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Background: The diagnostic delay in axial spondyloarthritis (axSpA) has been reported to be 9 years and still remains unacceptably high. One of the major reasons for this delay is a late referral of patients with suspicion of axSpA by primary care (PC) physicians dealing with patients with chronic back pain (CBP). Physician-based referral programs have performed well in recognition of patients with high probability of axSpA among CBP patients. However, there is still an unmet need for patients who do not receive a referral to a rheumatologist because of lack of awareness on PC level.

Objectives: To develop and evaluate an online self-referral tool for CBP patients and suspicion of axSpA.

Methods: Patients with CBP were included in the Identification of the Optimal Referral Strategy for Early Diagnosis of Axial Spondyloarthritis (OptiRef) Study and assessed by a rheumatologist if they either 1) were referred by a physician using the Berlin referral tool (CBP >3 months and CBP onset <45 years of age +at least 1 of the following 3 parameters: inflammatory back pain (IBP), HLA-B27 positivity, sacroiliitis on imaging), or 2) completed an online referral tool (www.bechterew-check.de) and indicated the presence of CBP >3 months with CBP onset <45 years of age +at least 1 additional SpA parameter (IBPsymptoms, good response to NSAID's, peripheral symptoms suggestive of arthritis/enthesitis, HLA-B27 positivity, elevated CRP, psoriasis, inflammatory bowel disease, uveitis, familyhistory). Rheumatologist then performed a structured assessment of SpA features and made the diagnosis of axSpA/non-axSpA.

Results: A total of 339 patients were included in the study: 162 patients (47.8%) were referred by a physician and 177 (52.2%) entered the study via the online self-referral tool. A total of 60 patients (37%) in the physician-referral group and 33 (18.6%) in the self-referral group were finally diagnosed with axSpA ($p<0.001$). The main patient characteristics are shown in table 1. Patients who were included via the online referral tool had a longer symptom duration, were more often females, less often HLA-B27 positive and had less often elevated CRP as compared to physician-referred patients. Furthermore, the physician global assessment of disease activity done by a rheumatologist was significantly lower in the self-referred group. In patients diagnosed with axSpA there were no significant differences concerning demographics, clinical features or disease activity parameters between the two groups, except of HLA-B27, which was significantly more often positive in subjects referred by a physician ($p<0.001$).

Abstract THU0230 – Table 1. Characteristics of patients with CBP and suspicion of axSpA referred by a physician or by a self-referral online tool.

Characteristics	Referral by a physician N=162	Self-referral N=177	p-value*
Diagnosis of axSpA, n (%)	60 (37.0%)	33 (18.6%)	<0.001
Age, years (mean±SD)	37.3 ± 11.8	36.6 ± 9.2	0.99
Female sex, n (%)	71 (43.8%)	101 (57.1%)	0.02
Back pain duration, (mean±SD)	6.2 ± 6.6	9.3 ± 8.0	<0.001
HLA-B27 positivity, n (%)	90 (55.6%)	36 (20.3%)	<0.001
Elevated CRP (>5 mg/l), n (%)	28 (17.3%)	16 (9.2%)	0.02
Good response to NSAIDs, n (%)	85 (52.5%)	85 (48%)	0.45
Peripheral arthritis, current, n (%)	5 (3.1%)	4 (2.3%)	0.74
Enthesitis, current, n (%)	12 (7.4%)	13 (7.3%)	1.00
Psoriasis, ever, n (%)	13 (8%)	21 (11.9%)	0.28
Inflammatory bowel disease, ever, n (%)	2 (1.2%)	4 (2.3%)	0.69
Uveitis, ever, n (%)	14 (8.6%)	9 (5.1%)	0.20
Family history of SpA, n (%)	19 (11.7%)	21 (11.9%)	1.00
BASDAI, 0-10 (mean±SD)	4.2 ± 2.0	4.2 ± 1.8	0.90
BASFI, 0-10 (mean±SD)	2.5 ± 2.2	2.4 ± 1.8	0.87
Patient global (0-10), mean±SD	5.3 ± 2.7	4.8 ± 2.5	0.07
Physician global (0-10), mean±SD	3.9 ± 2.3	2.5 ± 2.2	<0.001

*Mann-Whitney U-test or Fisher's exact test, whatever appropriate.

axSpA=axial spondyloarthritis; BASDAI=the Bath Ankylosing Spondylitis Disease Activity Index; BASFI=the Bath Ankylosing Spondylitis Functional Index; CBP=chronic back pain; CRP=C-reactive protein; SD=standard deviation.

Conclusions: The self-referral strategy resulted in the diagnosis of axSpA in 19% of the patients as compared to 37% with a referral done by a physician. However, the proportion of axSpA among self-referred patients was clearly higher than the expected 5% prevalence of axSpA in patients with CBP. The online self-referral tool can be used, therefore, in addition to a physician based referral program to improve the early diagnosis and to increase awareness of axSpA.

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THU0231

DO DEGREE OF FAMILY RELATIONSHIP AND ETHNICITY IMPACT THE ASSOCIATION BETWEEN A POSITIVE FAMILY HISTORY FOR SPONDYLOARTHRITIS AND PRESENCE OF HLA-B27? RESULTS FROM THE WORLDWIDE ASAS COHORT

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Background: The ASAS definition of a positive family history (PFH) of spondyloarthritis (SpA) consists of the following diseases in first (FDR)- or second-degree relatives (SDR): ankylosing spondylitis (AS), acute anterior uveitis (AAU), reactive arthritis (ReA), inflammatory bowel disease (IBD), and psoriasis. In two European cohorts (SPACE and DESIR) a PFH of AS and AAU, but not a PFH of ReA, IBD, and psoriasis, were associated with HLA-B27 carriership in patients suspected of axSpA¹. However, it is unknown what the role of the degree of family relationship or ethnicity is.

Objectives: To investigate the impact of the degree of family relationship and ethnicity on the association between the current ASAS definition of a PFH and the presence of HLA-B27 in an international cohort of patients suspected of axSpA.

Methods: Baseline data from patients suspected of axSpA in the worldwide ASAS cohort were analysed. Univariable analyses were performed. Each disease (AS, AAU, psoriasis, IBD, ReA) in a PFH according to ASAS expert opinion was a determinant in separate models with HLA-B27 carriership as outcome. Analyses were stratified for FDR, SDR, and self-reported ethnicities (white, Asian, and other). Analyses were repeated in multivariable models.

Results: In total, 594 patients suspected of axSpA were analysed. Patients had a mean age (SD) of 33.7 (11.7) years, 46% were male, had a mean symptom duration of 7.1 (9.0) years, had 3.5 (2.2) SpA features including HLA-B27 and imaging, 52% were HLA-B27 positive, 20% had sacroiliitis according to the mNY criteria, and 32% had active inflammation on MRI-SI. Sixty-two percent of the patients were diagnosed as axSpA and of these diagnosed patients 83% fulfilled the ASAS axSpA criteria. A PFH was reported by 23% of the patients; a PFH of AS was the most (15%) and PFH of AAU (1%) the least often reported family history among all patients. Any PFH was associated with HLA-B27 carriership in patients with a PFH in FDR, whites, and Asians but not in SDR. A PFH of AS was positively associated with HLA-B27 carriership in all subgroups (table 1). A PFH of AAU, ReA, IBD, or psoriasis was never positively associated with HLA-B27 carriership. In the multivariate analysis, similar results were found.

Abstract THU0231 – Table 1. Univariable associations between each disease of a positive family history and HLA-B27 carriership in chronic back pain patients suspected of axSpA included in the ASAS cohort (n=594)

	HLA-B27+ n=310	HLA-B27- n=284	OR (95% CI)	p-value
Any positive family history				
<i>Stratified by degree of family relationship</i>				
First-degree relatives	79	31	2.9 (1.8-4.5)	<0.001
Only second-degree relatives	15	10	1.7 (0.7-3.8)	0.212
<i>Stratified by self-reported ethnicity</i>				
white	54	26	2.3 (1.4-3.9)	0.001
Asian	38	14	3.1 (1.6-5.8)	0.001
Other ethnicities*	2	1	2.3 (0.2-25.0)	0.509
Family history of ankylosing spondylitis				
<i>Stratified by degree of family relationship</i>				
First-degree relatives	61	9	7.8 (3.8-16.0)	<0.001
Only second-degree relatives	13	4	3.7 (1.2-11.6)	0.023
<i>Stratified by self-reported ethnicity</i>				
white	37	6	7.1 (2.9-17.1)	<0.001
Asian	35	7	5.7 (2.5-13.2)	<0.001
Other ethnicities*	2	0	n.a.	n.a.

Statistically significant results are printed in bold.

* Self-reported ethnicity was missing for 5 patients, who are included in this category, and other ethnicities are black, East-Indian, Hispanic/Latino, mixed, or Turkish).

Conclusions: In the international ASAS cohort, a PFH of AS, but not of AAU, ReA, IBD, or psoriasis, was associated with HLA-B27 carriership in both first- and second-degree of family members and self-reported white and Asian ethnicity in patients suspected of axSpA. These data, in combination with data from two European cohorts, show that a PFH of AS and possibly also a PFH of AAU could be valuable in the general practice or other low SpA prevalence settings for identifying patients who are HLA-B27 positive and therefore have an increased risk of axSpA.

REFERENCE:

[1] Ez-Zaitouni, et al. AR&T 2017;19(1):118.

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THU0232

IS A POSITIVE FAMILY HISTORY OF SPONDYLOARTHRITIS RELEVANT FOR DIAGNOSING AXIAL SPONDYLOARTHRITIS ONCE HLA-B27 STATUS IS KNOWN? DATA FROM THE ASAS, DESIR AND SPACE COHORTS

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Background: Knowledge of a positive family history (according to the ASAS definition (ASAS PFH)) for spondyloarthritis (SpA), in particular a PFH of ankylosing spondylitis (AS) or acute anterior uveitis (AAU), is considered valuable in making a diagnosis of axSpA but clusters with HLA-B27 positivity¹. So a relevant clinical question is if a PFH is still important for making a diagnosis of axSpA if HLA-B27 status is known.

Objectives: To investigate in three independent axSpA cohorts if an ASAS PFH, a PFH of AS or a PFH of AAU contributes to a diagnosis of axSpA in patients with known HLA-B27 status.

Methods: Baseline data of patients suspected of axSpA in the ASAS, DESIR and SPACE cohorts were analysed. In each cohort, univariable logistic regression models were performed with HLA-B27 status and ASAS PFH as determinants and a clinical axSpA diagnosis as outcome. The analyses were repeated in multivariable models with both determinants. Relative risks for axSpA diagnosis were calculated stratified on both HLA-B27 status and ASAS PFH (HLA-B27-/ASAS PFH- as reference). Analyses were repeated with a PFH of AS and a PFH of AAU.

Results: In total, 1964 patients suspected of axSpA were analysed (ASAS n=594, DESIR n=647, SPACE n=723). ASAS, DESIR and SPACE patients had a mean (SD) symptom duration of 85.7 (108.4), 18.2 (10.5) and 13.3 (7.0) months; 54%, 47% and 38% were male; 52%, 58% and 44% were HLA-B27+; 44%, 40% and 35% had sacroiliitis on imaging (MRI and/or radiographs); 62%, 45% and 53% received a clinical diagnosis of axSpA; an ASAS PFH was reported in 23%, 39% and 43%, respectively. In the univariable analysis, HLA-B27 status was significantly associated with an axSpA diagnosis in all three cohorts; ASAS: OR 6.7 (95%CI 4.7–9.8), DESIR: OR 2.1 (95%CI 1.5–2.9), SPACE: OR 6.6 (95%CI 4.7–9.2). An ASAS PFH was univariately associated with an axSpA diagnosis in SPACE (OR 1.5 (95%CI 1.01–2.0)), but not in ASAS (OR 1.4 (95%CI 0.9–2.0)) and DESIR (OR 1.0 (95%CI 0.7–1.4)). In the multivariable models, HLA-B27 status was independently associated with a diagnosis of axSpA but such an independent association was not found for ASAS PFH in any cohort (ASAS: HLA-B27 OR 6.9 (95%CI 4.7–10.2), ASAS PFH OR 0.9 (95%CI 0.6–1.4); DESIR: HLA-B27 OR 2.1 (95%CI 1.5–2.9), ASAS PFH OR 1.0 (95%CI 0.7–1.3); SPACE: HLA-B27 OR 6.6 (95%CI 4.7–9.3), ASAS PFH OR 1.0 (95%CI 0.7–1.4)). In all cohorts, the relative risk of an axSpA diagnosis was highest in HLA-B27+/ASAS PFH- patients (Abstract THU0232 – figure 1).. Similar results were found for a PFH of AS and AAU (data not shown).

Abstract THU0232 – Figure 1. Relative risks of axSpA diagnosis in patients suspected of axSpA stratified on HLA-B27 status and a positive family history according to the current ASAS definition (ASAS PFH) per cohort. HLA-B27-/ASAS PFH- is the reference category (RR=1).

Conclusions: A PFH does not contribute to the likelihood of an axSpA diagnosis in back pain patients with a known HLA-B27 status. This suggests that asking for a PFH of SpA in patients presenting with back pain is redundant if HLA-B27 status is known.

REFERENCE:

[1] Ez-Zaitouni, et al. AR&T 2017;19(1):118.

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THU0233

SICK LEAVE AND ITS PREDICTORS IN ANKYLOSING SPONDYLITIS: LONG-TERM RESULTS FROM THE OUTCOME IN ANKYLOSING SPONDYLITIS INTERNATIONAL STUDY

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Background: Sick leave (SL) among patients with ankylosing spondylitis (AS) is a relevant outcome for individuals and for society. Disease related factors, contextual factors, but also SL itself may be risk factors for future adverse work outcome. To reveal predictors of SL over time, longitudinal studies are necessary. If SL itself is an independent predictor for further SL, this further underpins initiatives in clinical care to support worker participation.

Objectives: To investigate the occurrence of AS-related SL over 12 years and to explore which factors predict or explain SL.

Methods: Data from employed patients from the Outcome in Ankylosing Spondylitis International Study were used. At each visit, patients indicated the occurrence of SL (yes/no) in the previous inter-assessment period. Cox regressions were used to predict the hazard for a first episode of SL using baseline predictors. Generalised estimating equations (GEE) were used to investigate the association between SL and (time-lagged) predictors. To investigate whether SL predicts future SL, SL in the first year was included as covariate in a separate GEE analysis. Due to collinearity between ASDAS, BASDAI and BASFI, separate multivariable models were computed.

Results: 139 patients (76% males, mean [SD] age 38.7 [10.0] years) were at risk for SL during a mean (SD) period of 7.9 (3.9) years. Among the 88 patients (63%) who ever reported SL, 62 (70%) reported SL at more than 1 assessment. In separate multivariable Cox baseline predictors models, baseline ASDAS (HR 1.67 [95%CI 1.23–2.28]), BASDAI (HR 1.33 [95%CI 1.18–1.51]) and BASFI (HR 1.17 [95%CI 1.02–1.34]) were associated with increased hazard of SL, but only in male patients with a low level of education. In separate multivariable time-varying GEE models, 1 year time-lagged ASDAS (OR 1.48 [95%CI 1.07–2.03]), BASDAI (OR 1.31 [95%CI 1.15–1.49]) and BASFI (OR 1.31 [95%CI 1.16–1.47]) were associated with SL, but only in patients with a low level of education. Further adjustment for job type did not lead to different results, and job type itself was not significantly associated with SL. SL during the first year predicted SL over time (OR: 2.62–8.37 in different models, all p<0.05), independently of educational level, disease activity or physical function.

Conclusions: Disease activity and physical function predict and explain variation in SL, but only in patients with a low level of education. Prior SL results in future SL, and SL should be considered an actionable factor for support to prevent future adverse work outcome. Research into which SL is beneficial with regard to recovery and which SL is a risk for work disability is needed.

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THU0234

BMI DOES NOT AFFECT CLINICAL OUTCOME IN PSORIATIC ARTHRITIS PATIENTS TREATED WITH TIGHT CONTROL STRATEGY

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Background: Psoriatic arthritis (PsA) is characterised by several comorbidities; among these obesity and overweight have a major impact on patients' quality of