manifestations (B for both)¹. Those cluster-based SpA phenotypes could correspond to different levels of disease severity.

Objectives: To assess whether cluster-based SpA phenotypes defined at baseline are conserved over time and might predict disease outcome at follow-up.

Methods: We analysed longitudinal data from the 586 patients who completed all follow-up visits until 5-year (mo 6, 12, 18, 24, 36, 48 and 60) out of the 679 patients included in the DESIR cohort used to define clusters at baseline. We performed a linear mixed-effect analysis for quantitative variables (using lme4 R package) and a generalized linear mixed-effect analysis for qualitative variables (using glmer R package) with cluster and follow-up visits as fixed effects and subjects as random effect. *P*-values were obtained by likelihood ratio tests of the full model with cluster against the model without cluster as fixed effects.

Results: Over the time, both clusters continued to show sustainable consistent differences characterized by higher frequency of peripheral involvement, higher disease activity, worse patient-reported outcome, higher frequency of conventional DMARDs and TNF blockers usage in cluster B, and higher frequency of radiographic and MRI sacroiliitis at 2 and 5 years in cluster A (Table).

Variable*	Fixed effect estimate ± standard error**	P-value
BASDAI	7.28 ± 1.08	3 × 10 ⁻⁷
ASDAS-CRP	0.22 ± 0.06	1.3 × 10 ⁻⁴
HAQ	0.20 ± 0.03	4.4 × 10 ⁻⁸
Presence of at least one synovitis	0.95 ± 0.21	1.5 × 10 ⁻⁷
Swollen joint count	0.09 ± 0.03	0.001
Enthesitis clinical score (MASES)	1.81 ± 0.34	1.3 × 10 ⁻⁷
TNF blocker-usage	1.81 ± 0.54	5.2 × 10 ⁻⁸
Conventional DMARDs usage	2.00 ± 0.38	4.9 × 10 ⁻¹⁶
Radiographic sacroiliitis	-0.92 ± 0.62	0.002
MRI sacroiliitis	-0.76 ± 0.23	5.4 × 10 ⁻⁵

* All the variables have been recorded at all the follow-up visits except radiographic and MRI sacroiliitis which have been evaluated at inclusion, 2 and 5 years.

** Cluster B compared to cluster A

Table – Significant results of the linear mixed effect and generalized linear mixed-effect analysis.

Conclusion: Cluster-based SpA phenotypes defined at baseline in the DESIR cohort were predictive of severity outcome after 5 years. Patients from cluster A were more prone to develop sacroiliitis despite lower disease activity over the time, whereas those from cluster B had poorer clinical outcome and higher need for conventional DMARDs and TNF blockers.

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CLINICAL, IMAGING AND BIOLOGIC FEATURES OF SPONDYLOARTHRITIS IN AN AT-RISK POPULATION: DATA FROM THE PRE-SPA COHORT

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Background: Diagnosis in axial spondyloarthritis (axSpA) is challenging and often delayed by several years, resulting in a delay in treatment.

Previously we reported presence of spondyloarthritis (SpA) features and imaging abnormalities in first-degree relatives (FDRs) of HLA-B27 axSpA patients, who are at risk of developing axSpA [1]. Follow up of these at risk individuals could help to identify clinical signs, imaging abnormalities or biomarkers that are predictive of development of axSpA.

Objectives: To investigate imaging, biologic and/or clinical signs of SpA at baseline and after 1 year follow up, as well as development of clinically manifest axSpA after 1 year follow up in at risk individuals.

Methods: The Pre-SpA cohort[1] is a prospective inception cohort in which FDRs of HLA-B27 positive axSpA patients are included and followed for 5 years. The main exclusion criteria were: a diagnosis of SpA at baseline and back pain with a previous non-rheumatic diagnosis, such as spinal disc herniation. Clinical and biologic characteristics were collected at baseline and after 1 year. Imaging was performed at baseline including MRI of the sacroiliac joints (SIJ) and X-rays of the cervical and lumbar spine and SIJ. MRIs were scored according to the ASAS definition for a positive MRI by two readers. X-rays were scored according to the modified New York (mNY) criteria for ankylosing spondylitis by two readers.

Results: In the current study we report the characteristics of 201 participants at baseline and 123 participants after one year of follow-up. 126 (62.7%) participants reported back pain, of which 39(19.4%) fulfilled criteria for inflammatory back pain. Median [IQR] VAS total back pain (0-100mm) was 11 (0-28). Six (2.9%) were previously diagnosed with arthritis by a physician, nine(4.4%) with enthesitis and one(0.5%) with dactylitis. In none of these participants a diagnosis of SpA was made. Seven participants were previously diagnosed with an extra-articular manifestation possibly related to SpA: four with psoriasis and three with anterior uveitis. Three (1.5%) participants fulfilled the mNY criteria for sacroiliitis on radiography. Ten (5%) participants had bone marrow edema on MRI of the SIJ suggestive of SpA. Fifty-six (27.8%) participants would have fulfilled ASAS classification criteria for axSpA if they would have had a clinical diagnosis of axSpA. After one year patient-reported disease activity variables remained stable; median [IQR] VAS total back pain (0-100mm) was still low: 4[0-24]. During one year of follow-up, in total seven participants developed symptoms and were clinically diagnosed with axSpA.

Conclusion: Imaging signs and clinical signs of SpA are present in a substantial proportion of seemingly healthy FDRs of HLA-B27 positive AxSpA patients. Twelve (6.0%) participants had imaging suggestive of SpA, but a clinical diagnosis of axSpA was still rare after one year of follow up (5.7%). Future follow-up will increase numbers of individuals diagnosed with axSpA and help us identify early symptoms and signs of SpA in this at risk population.

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