Fig. 1. Modified Stoke Ankylosing Spondylitis Spine Score (mSASSS) for individual patients plotted as a function of duration since symptom onset.

Fig. 2. Two-year mSASSS progression depicted in a cumulative probability plot. Progression was defined as an increase in mSASSS of at least 2 units (dotted line) in 2 years.

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CLINICAL DISEASE ACTIVITY, MRI SPINAL INFLAMMATION AND ENTHESITIS ARE KEY DETERMINANTS OF IMPAIRMENT OF SPINAL MOBILITY IN EARLY AXIAL SPONDYLOARTHRITIS – DATA FROM THE DESIR COHORT

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Background: It has been shown that spinal mobility impairment in axial spondyloarthritis (axSpA) is independently determined both by irreversible spinal damage and by reversible spinal inflammation. However, these relationships have only been investigated in patients with longstanding disease (ankylosing spondylitis). Moreover, only the composite score Bath Ankylosing Spondylitis Metrology Index (BASMI) has been evaluated rather than individual mobility assessments.

Objectives: Our aim was to investigate the determinants of spinal mobility in patients with early axSpA.

Methods: We analysed longitudinal data from the DEvenir des Spondyloarthrites Indifférenciées Récentes (DESIR) cohort, collected during the first five years of follow-up. We selected patients with a definite diagnosis of axSpA according to the treating rheumatologist, at the end of follow-up (month 60). Associations were tested using generalised estimating equations (GEE), a multilevel approach that adjusts for within-patient correlation. The Bath Ankylosing Spondylitis Metrology Index (BASMI) or the individual components of BASMI (lateral spinal flexion, tragus-to-wall distance, cervical rotation, anterior lumbar flexion, maximal intermalleolar distance) were used as dependent variables, and clinical and demographic variables were used as independent variables in univariable models. Spinal MRI inflammation was assessed using the Berlin scoring system and radiographic structural damage was assessed using the modified Stoke ankylosing spondylitis spinal score (mSASSS). As physical function and quality of life are considered to be hierarchically superior to spinal mobility, they were not included in the analysis. Multivariable models were built, adjusting for potential confounding. Variables with a p-value <0.10 were re-tested in the multivariable models. Six models were built, one regarding the BASMI total score and five regarding the individual components of BASMI.

Results: Data from 644 patients and 5152 visits were analysed. In the multivariable analyses (table), we found an independent association between higher BASMI values and age [adjusted B (aB)=1.02, confidence interval (CI)=1.01-1.03], Ankylosing Spondylitis Disease Activity Score-C Reactive Protein (ASDAS-CRP) (aB=1.23, CI=1.15-1.32), enthesitis score (aB=1.02, CI=1.01-1.04) and MRI inflammation score (aB=1.13, CI=1.05-1.23). All individual BASMI components were independently associated with ASDAS-CRP. Apart from maximal intermalleolar distance, all other mobility measures were associated with MRI spinal inflammation. Lateral spinal flexion, cervical rotation and maximal intermalleolar distance were associated with the enthesitis score. mSASSS was associated with lateral

Table: Multivariable GEE results (aB; 95% CI) presenting independent associations between BASMI (or its components) and clinical and demographic variables

	Mobility measures where higher values represent worse mobility		Mobility measures where higher values represent better mobility			
	BASMI	Tragus-to-wall distance	Lateral spinal flexion	Cervical rotation	Anterior lumbar flexion (modified Schober)	Maximal intermalleolar distance
Age	1.02 (1.01-1.03)		0.91 (0.87-0.96)	0.79 (0.69-0.90)		0.71 (0.61-0.82)
Male gender	#	2.35 (1.73-3.18)	5.01 (2.15-11.67)	#		171.35 (16.86-1742.22)
Education*	#	2.10 (1.06-4.16)	#	#		388.23 (32.09-4696.38)
BMI	0.97 (0.95-0.99)	1.04 (1.00-1.09)			1.08 (1.05-1.11)	
HLA-B27 positive	0.82 (0.70-0.97)		#	13.99 (1.09-180.20)		19.07 (1.56-233.62)
Symptoms' duration			0.76 (0.65-0.88)		1.07 (1.03-1.12)	1.72 (1.30-2.27)
Currently employed					#	
Current arthritis	#			0.01 (0.00-0.86)	#	
ASDAS-CRP	1.23 (1.15-1.32)	1.28 (1.07-1.52)	0.56 (0.39-0.79)	0.12 (0.04-0.38)	0.87 (0.79-0.97)	0.14 (0.08-0.25)
Enthesitis score	1.02 (1.01-1.04)		0.92 (0.86-1.00)	0.73 (0.59-0.89)		0.78 (0.67-0.89)
mSASSS	#	1.17 (0.90-1.51)**	0.77 (0.510-0.98)	0.42 (0.16-1.11)**	#	
MRI inflammation score	1.13 (1.05-1.23)	1.33 (1.08-1.64)	0.59 (0.44-0.80)	0.41 (0.17-0.95)	0.92 (0.86-0.98)	

#Statistically significant in the univariable models but excluded from the best-fit multivariable model; *Education at baseline (university or equivalent); **mSASSS not significant in the multivariable model but included as it was found to be a contributory variable improving model-fit.