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FRI0452 IMPACT OF A TRAINING PROGRAM AND EARLY REFERRAL ON DIAGNOSTIC DELAY IN PATIENTS WITH AXIAL SPONDYLOARTHRITIS: RESULTS FROM THE SPANISH ATLAS

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Background: In patients with axial spondyloarthritis (axSpA), diagnosis delay (DD) postpones the initialisation of the most appropriate treatment with irreversible consequences on physical function, mobility and quality of life of patients. DD is also responsible for increased health costs resulting from incorrect referrals, visits to inappropriate health professionals and poorly planned diagnostic tests. Many initiatives have been undertaken in recent years in an attempt to reduce DD but their influence is still unknown.
Objectives: i) To determine diagnosis delay in patients with ax-SpA in Spain; ii) To assess the pre-diagnosis care process; iii) To analyse the possible beneficial effects on DD of a training programme for primary care physicians and early referral to rheumatology units.
Methods: A sample of 680 patients diagnosed with ax-SpA was interviewed during 2016 as part of the Atlas in Spain. This project aims to improve early diagnosis and to promote the use of effective treatments in ax-SpA patients. Collected data included: socio-demographics, medical visits prior to diagnosis, date for first symptoms and diagnosis and disease characteristics. This information was used to determine the DD and the possible beneficial effects on DD of a training programme for primary care physicians and early referral to rheumatology units. A descriptive analysis was performed, stratifying the results according to the start of the symptoms (before and after 2009). The ESPeranza Program (a Spanish prospective multicentre national health programme aimed at facilitating early diagnosis of patients with ax-SpA) started in 2009.
Results: 53% of the patients included were females. Mean scores (standard deviation) were 45.7 (10.8) years for age and 12.4 (11.2) for disease duration. 77.1% were HLA-B27+. Visits to health professionals prior to diagnosis included: primary care physicians (88.5%), orthopaedic surgeons (71.7%), rheumatologists (70.4%), and physiotherapists (47.6%). The mean number of consultations prior to diagnosis was 2.6; 3.0; 2.0 and 3.4, respectively.
Patients stated the onset of the first ax-SpA symptoms was at mean 24.4 years of age, with diagnosis at mean 32.9 years of age, translating into a mean DD of 8.5 years. For 25% of patients DD was >12 years, whereas a DD of <2 years was found in only 25% of respondents. Mean DD for patients whose first symptoms appeared before 2009 was 9.5 years, whereas for patients whose first symptoms appeared after that date it was significantly reduced to 2.5 years.
Conclusions: The mean delay in diagnosis ax-SpA in Spain is above 8 years. Patients make a large number of visits to a variety of specialist physicians before they are diagnosed, which could point to proof of wrong referrals by primary care. However, DD has fallen drastically (to a mean 2.5 years) since the implementation of the ESPeranza Program in 2009, suggesting that training primary care physicians have substantial beneficial effects on patients with ax-SpA and the care process.
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FRI0453 CLINICAL AND THERAPEUTIC CHARACTERIZATION OF A COLOMBIAN COHORT WITH SPONDYLOARTHROPATHIES

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Background: Spondyloarthropathies (SpAs) are a group of auto-inflammatory diseases, with overlapping symptoms, that include ankylosing spondylitis (AS), psoriatic arthritis (PsA), undifferentiated spondyloarthritis (Und SpA), enteropathic arthritis, and reactive arthritis (1).
Objectives: To characterize the disease in a large Colombian cohort with SpAs, assessing differences in its classification, clinical manifestations, laboratory results, radiographic changes, and treatment, according to the type of SpA.
Methods: A cross-sectional study was conducted in 621 patients with SpAs, in whom sociodemographic, clinical and therapeutic characteristics were analyzed based on the type of diagnosis. Statistical association was examined by means of Chi-square tests, Fisher's exact test, Mann-Whitney test, and logistic regression analyses. In all cases, a p value <0.05 was considered significant.
Results: Out of the 621 patients included, AS was observed in 54,7%, PsA in 35,7%, and Und SpA in 9,5%. AS was positively associated to male gender (OR 2.05 95%IC 1.5–2.8), younger age at onset, axial involvement (OR 23.2 95%IC 15.2–35.5), uveitis (OR 3.8 95%IC 2.25–6.57), radiographic sacroilitis (OR 6.95 95%IC 3.02–16.02), and HLA-B27 positivity (OR 2.3 95%IC 1.5- 3.5). PsA was associated to female gender, older age at onset, arthritis, and peripheral involvement. According to the therapeutic approach, more use of conventional DMARD therapy was found in PsA and Und SpA, while more use of biology therapy in AS.

Table 1. General characteristics of patients with SpAs

	All N=621		AS N=340		PsA N=222		Und SpA N=59		p-value
	N	%	N	%	N	%	N	%	
Mean (SD)									
Age, year	49.3 (12.4)		45.2 (12.5)		56.7 (11.8)		45.9 (12.9)		**<0.0001**
Age at diagnostic, year	40.1 (12.9)		33.5 (12.6)		46.8 (13.5)		39.9 (12.5)		**<0.0001**
Male	328	52.8	208	61.1	96	43.2	24	40.6	**<0.0001**
Age at onset, <45 years	469	75.5	291	85.5	140	63.1	38	64.4	**<0.0001**
Low back pain	342	55.1	266	78.2	47	21.2	29	49.2	**<0.0001**
Arthritis	411	66.2	152	44.7	213	96	46	78	**<0.0001**
Enthesitis	217	34.9	136	40.	37	16.7	44	74.6	0.38
Dactylitis	116	18.7	49	14.4	45	20.3	22	37.3	**0.0002**
Psoriasis	225	36.2	3	0.88	221	99.6	1	1.7	**<0.0001**
Uveitis	92	14.8	75	22.1	7	3.2	10	16.9	**<0.0001**
Family history	108	17.4	55	16.2	47	21.2	6	10.2	0.09
Sacroilitis (Rx)	70/171	40.9	62/116	53.5	7/37	18.9	1/18	5.6	**<0.0001**
Sacroilitis (MRI)	203/279	72.8	182/212	85.9	21/39	53.9	0/28	0.0	**<0.0001**
HLA-B27	284/438	64.8	229/321	71.3	17/61	27.9	38/56	67.9	**<0.0001**
Axial	397	63.9	328	96.5	37	16.8	32	54.2	**<0.0001**
Peripheral	488	78.6	213	62.6	218	98.2	57	96.6	**<0.0001**
Both	264	42.5	201	59.1	33	14.9	30	50.9	**<0.0001**

SD, standard deviation; Rx, radiography; MRI, Magnetic resonance.

Conclusions: To our knowledge, this is the larger existing cohort with SpAs in Colombia. Understanding the natural history of disease is important to do an early diagnosis and treatment that could prevent irreversible disability.
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FRI0454 M-SASSS AND CERVICAL SEGMENT C7-D1. SHOULD THE ORIGINAL SCORE BE MODIFIED?

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Background: Ankylosing Spondylitis is characterized by axial involvement. m-SASSS is the radiographic score that is used to evaluate the radiographic progression of the disease. It evaluates different lesions in the lumbar segment and in the cervical segment (from C2-C3 to C7-D1), both with a lateral x-ray.
Theoretically, the C7-D1 intervertebral segment should not be evaluated through a simple lateral radiograph, but with x-rays in special positions.
Objectives: To evaluate the importance of the assessment of the C7-D1 intervertebral segment in patients with Ankylosing Spondylitis.
Methods: The patients come from a Spondyloarthritis Unit (Hospital Virgen of the Arrixaca, Murcia, Spain). All patients are diagnosed with Ankylosing Spondylitis (New York Modified Criteria)
The usual radiographic study was performed to calculate the m-SASSS (lateral cervical and lateral lumbar). We value the alterations found at level C7-D1 of patients and controls.
We compared the alterations found in patients with ankylosing spondylitis with control patients. These came from different rheumatology units, had no inflammatory pathology and had two lateral radiographs at different time periods. We collected demographic data (both from patients and from controls) and from clinical patients (analytical, activity and metrology).
Results: We included 47 patients (81% male and 19% female) with a mean age of 48 (± 8) years and a mean duration of symptoms of 18 (± 8.5) years. The mean time between the two radiographic studies was 3 (± 1.5) years. The control group was made up of 61 people (40, 7% men) with a mean age of 50 years (± 11).
The mean age of the control group was higher than patients (p=0.001).
The C6-C7 intervertebral level could be assessed radiographically with the lateral cervical radiograph in 93,2% of the patients and in 85, 2% of controls, and the C7-D1 level was only assessed in 22, 7% of the patients and 50% of the controls. We analyzed whether the assessment of intervertebral level C7-D1 could be influenced by other variables such as sex, age or duration from the symptoms without finding a statistical result.
The 88, 5% of patients had a lower border of C7 normal or with squaring, erosion or sclerosis. Only 1 patient had syndesmophyte and 2 patients had a bridge between vertebrae. On the upper border of D1, 85, 5% of patients had normal or type-1 lesions (squarin, sclerosis or erosion), there wasn't syndesmophytes and 2 patients had a bridge (Table)

	Injury	Prevalence (%)
Lower border of C7 (n=26)	Normal	65,5%
	Sclerosis, squaring, erosion	23%
	Syndesmophyte	4%
	Bridge	7,5%
Upper border of D1 (n=14)	Normal	57%
	Sclerosis, squaring, erosion	28,5%
	Syndesmophyte	0%
	Bridge	14,5%

Conclusions:
- The cervical segment C7-D1 is not usually valuable through a lateral cervical radiograph.
- Most of our patients with Spondylitis have no significant lesions in this segment.
- It is recommended to modify the m-SASSS index by removing the assessment of the cervical segment C7-D1.

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FRI0455 RADIOGRAPHIC PROGRESSION OF HIP ARTHRITIS IN PATIENTS WITH ANKYLOSING SPONDYLITIS TREATED WITH TNF INHIBITORS

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Background: Although there is debate whether treatment with TNF inhibitors (TNFi) in AS may not inhibit spinal radiographic progression, the effect on hip involvement may be different (1,2).
Objectives: To estimate the impact of long-term TNFi treatment on radiographic progression of hip arthritis in AS, by adding a quantitative scoring method, previously applied in hip osteoarthritis, to the BASRI-hip score.
Methods: Consecutive TNFi-naïve AS patients (fulfilling the modified New York criteria) who were eligible for TNFi treatment were included. Hip involvement was assessed clinically (pain, reduced range of motion and intermalleolar distance) and radiographically. X-rays of the pelvis and lateral cervical and lumbar spine were obtained at 3 time points: at baseline two and seven years after the start of TNFi. Both hips were scored using: a) BASRI-hip score (BASRI-h score $\geq$2 is classified as definitive hip involvement), b) mean joint space width (MJSW), estimated by measurement of 3 distinct points of interbone distance: 2mm inner of the external end of the acetabulum, vertical line through femoral head center, head-neck center line (1). Spinal X-rays were scored were scored blindly, by 2 independent readers using the mSASSS. The significance of changes was tested by mixed models for longitudinal data.
Results: 262 AS patients (188 men, age: 49.8±12 years, disease duration: 24.4±12 years) under TNFi treatment were included. Definite hip involvement at baseline was detected in 95/262 (36%) patients, who had significantly higher BASRI-hip score [2 (2–2.5) median (IQR) vs. 0.5 (0–1) $p<0.0001$] and lower MJSW (3.6±0.7 vs. 4.5±0.7, $p<0.0001$), compared to those without. In patients with hip arthritis at baseline, both BASRI-h score and MJSW remained unchanged during follow up. In patients without hip arthritis, the BASRI-hip score remained unchanged after 2.5±0.7 years, but increased significantly after 7±2.3 years compared to baseline. In contrast, the MJSW in patients without hip arthritis remained unchanged at the three time points. The mSASSS raised significantly during the follow-up period, regardless of hip involvement (see table).

Variables	Baseline	After 2.5±0.7 years	After 7±2.3 years	P
All pts (n=262)				
BASRI-hip, mean±SD	1.15±1	1.14±1	1.2±1	<0.0001
MJSW (mm), mean±SD	4.17±0.8	4.16±0.8	4.12±0.7	NS
mSASSS, median (IQR)	6 (1–24.5)	8 (1–30)	11 (2–30)	<0.0001
Pts with hip involvement (n=95)				
BASRI-hip, median (IQR)	2 (2–2.5)	2 (2–2.5)	2 (2–2.5)	NS
MJSW (mm), mean±SD	3.59±0.7	3.58±0.7	3.53±0.7	NS
mSASSS, median (IQR)	12 (2.5–36)	17 (3–40.5)	15.5 (3–37.5)	<0.0001
Pts without hip involvement (n=167)				
BASRI-hip, mean±SD	0.49±0.5	0.5±0.53	0.58±0.57	<0.0001
MJSW (mm), mean±SD	4.5±0.7	4.47±0.6	4.44±0.6	NS
mSASSS, median (IQR)	4 (0–18)	7 (1–25)	9 (2–27)	<0.0001

Conclusions: One third of the AS patients suffer from radiographic hip involvement, which seems to stabilize during long-term anti-TNF treatment. Assessment of MJSW may contribute to detect minor changes in contrast to BASRI-hip score' rough estimation.

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FRI0456 AGE AT SPONDYLOARTHRITIS DIAGNOSIS AND RISK OF CARDIOVASCULAR COMORBIDITY: RESULTS FROM THE COMOSPA STUDY

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Background: Spondyloarthritis (SpA) and chronic inflammatory diseases are associated with a number of cardiovascular comorbidities. It is unknown whether age at SpA diagnosis is associated with cardiovascular outcomes in later life.
Objectives: To examine the relationship between "younger age at SpA diagnosis" and risk of various cardiovascular comorbidities.
Methods: COMOSPA is a large worldwide cross-sectional study comprising 3984 patients from 23 countries evaluating comorbidities in patients with SpA (1). We evaluated the association between "younger age at SpA diagnosis" (defined in 5-year blocks) and cardiovascular comorbidities using uni-variable and multi-variable binary logistic regression. Each model comprised one cardiovascular co-morbidity as dependent and "age at SpA diagnosis" as predictor adjusted for age, sex, BMI, history of smoking, alcohol, NSAIDs, DMARDs, biologics, steroids and other relevant factors
Results: The data of 3923 patients (64% male) were available for analysis. Current age ranged from 18 to 100 with median (IQR) of 42 (32–53) years. The median (IQR) age at SpA diagnosis was 33 (25–43) years. Main reported cardiovascular-related comorbidities were hypertension (22.4%), ischemic heart disease (IHD) (2.6%), stroke (1.3%) and diabetes mellitus (5.5%).
The risk of hypertension, after adjustment for potential confounding factors was associated with younger age at SpA diagnosis (OR=1.10, 95% CI: 1.05 -1.16), indicating 10% higher risk of hypertension for each 5 year younger age at time of SpA diagnosis (Table). Confounding variables showing significant association with hypertension were current age (OR=1.12, 95% CI: 1.10–1.13, $p<0.001$), male gender (OR=1.47, 95% CI: 1.20–1.80, $p<0.001$), current BMI (OR=1.09, 95% CI: 1.07–1.11, $p<0.001$), ever use of steroids (OR=1.24, 95% CI: 1.03–1.50, $p=0.027$) and ever use of synthetic DMARDs (OR=1.28, 95% CI: 1.05–1.57, $p=0.017$), but not ever use of NSAIDs or biologic DMARDs.
The other cardiovascular comorbidities were not associated with "younger age at SpA diagnosis" after adjustments for relevant confounding factors in multivariable analyses (Table)

Table 1. Association between "younger age at SpA diagnosis" and the risk of cardiovascular disease

	Univariable		Multivariable	
	OR (95% CI)	p value	OR (95% CI)	p value
Hypertension	0.76 (0.74 -0.79)	<0.001	1.10 (1.05 -1.16)	<0.001
IHD	0.74 (0.69 -0.80)	<0.001	0.99 (0.91 -1.086)	0.854
Stroke	0.79 (0.71 -0.87)	<0.001	0.98 (0.86 -1.11)	0.736
Diabetes Mellitus	0.78 (0.74 -0.82)	<0.000	0.95 (0.88 -1.02)	0.172

Conclusions: Younger age of SpA diagnosis is associated with increased risk of developing hypertension but not other cardiovascular comorbidities in this study. The explanation for this association is not clear and does not appear to be due to increased NSAID exposure.
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FRI0457 THE ROLE OF SERUM HMGB1 IN BONE REMODELİNG AND OSTEOPOROSIS IN A GROUP OF ANKYLOSING SPONDYLITIS PATIENTS

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Background: Ankylosing spondylitis is characterized by new bone formation and bone loss, associated with inflammation, which are mediated by cytokine-signaling pathways. High mobility group box 1 (HMGB1) protein, is a nonhistone nuclear protein, which is secreted by inflammatory cells, is also defined as a bone-active