cytokine. Recent studies have shown that RANKL induces HMGB1 release and it is required for RANKL-induced osteoclastogenesis in vitro and in vivo.

Objectives: To investigate the relationship of serum HMGB1 levels with RANKL/Osteoprotegerin (OPG) axis and clinical and radiographic parameters in patients with AS.

Methods: In this cross-sectional study, serum samples for total HMGB1, sRANKL and OPG were detected from 54 tumour necrosis factor (TNF) inhibitor naive patients with AS according to the modified New York criteria [mean age 34.9 years (S.D. 7.1); duration of symptoms 8.6 years (S.D. 4.2); male gender 38 patients (70.4%)] and 26 healthy controls. ESR, CRP, Bath AS Disease Activity Index (BASDAI), Bath AS Functional Index (BASFI) were assessed for each patient. Bone mineral density was measured using dual-energy X-ray absorptiometry (DXA) at lumbar spine (L2–L4) and proximal femur. Lumbar spine radiographs were scored using the modified Stoke AS Spine Score (mSASSS).

Results: Serum HMGB1 levels were relatively higher in patients with AS than HCs however no statistically significant in each other. Serum HMGB1 levels correlated with CRP ($\rho=0.368$ and $P=0.006$), ASDAS-CRP ($\rho=0.358$ and $p=0.008$) and BASDAI ($\rho=0.334$ and $p=0.014$) and BASFI ($\rho=0.355$ and $p=0.008$) in patients with AS. CRP and ASDAS-CRP showed more correlated to HMGB1 serum levels than BASDAI. There was no significant correlation between HMGB1 levels with sRANKL, OPG, mSASSS and spine or femur BMD values. In addition, serum OPG levels and the ratio of sRANKL to OPG from AS patients were significantly higher than those of HCs.

Table 1

	AS patients (n=54)	Healthy controls (n=26)	p
Age (yrs)	34.9±7.1	33.3±4.0	N/A
Body mass index (kg/m ²)	26.3±4.7	26.3±2.8	N/A
Disease duration (yrs)	8.6±4.2	—	N/A
ESR (mm/hr)	22.0±8.5	—	N/A
CRP (mg/L)	11.5±8.9	—	N/A
HMGB1 (ng/ml)	337.1±166.1	286.3±126.1	N/A
sRANKL (ng/ml)	148.6±31.4	137.2±46.9	N/A
OPG (ng/ml)	285.5±68.9	317.8±51.8	0.02
sRANKL/OPG	0.6±0.2	0.4±0.1	<0.001

Conclusions: This study showed that levels of HMGB1 in the sera of AS patients, are increased compared to healthy controls. Serum HMGB1 levels are related to BASDAI, ASDAS-CRP, BASFI and CRP in patients with AS. Different results in the literature on serum HMGB1 levels as well as our results support the hypothesis that HMGB1 plays a role in the pathogenesis of AS. According to our knowledge, it is the first trial evaluating association between serum HMGB1 levels with sRANKL-OPG axis, bone mineral density and new bone formation in AS patients and it seems not to be related for these conditions.

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FRI0458 ASSESSMENT OF BONE MINERAL DENSITY IN PATIENTS WITH EARLY AXIAL SPONDYLOARTHRITIS FROM CORSAR COHORT: 2 YEARS FOLLOW UP

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Background: Bone loss in patients (pts) with early axial spondyloarthritis (axSpA) is insufficiently studied and may be associated with disease activity.

Objectives: To assess the bone mineral density (BMD) in pts with early axSpA base on data from 2 years follow up of CORSAR cohort.

Methods: The research included 65 pts with axSpA (criteria ASAS 2009) with disease duration <5 years and age at onset <45 years. Pts at least 2 years follow up, 32 (49.2%) male, pts mean age was 28.5 (5.8) y., average disease duration 24.1 (15.4) mo, 60 (92.3%) pts were HLA-B27 positive. At baseline all pts were NSAID-naïve, DMARD-naïve, anti-TNF-naïve. For 2 years all pts taking NSAIDs at therapeutic doses, part of the pts received sulfasalazine and anti-TNF. BMD was measured using dual energy x-ray absorptiometry (DXA) of the femoral neck (FN) and lumbar spine (LS) (L2–4) at baseline and after 1 year, and 2 years follow up. BMD reduction was defined as Z score ≤ -2 (at least one site).

Results: Low BMD at baseline founded in 9 (13.8%) pts, in 10 (15.3%) pts after 1 year and in 5 (7.7%) pts after 2 years follow up. There were no significantly

Table 1. BMD at baseline and after 1 and 2 years follow up

	Baseline	1 years after baseline	2 years after baseline	p
BMD LS mean (s.d)	-0.759 (1,13)	-0.679 (1,11)	-0.627 (1,11)	0.541
BMD FN mean (s.d)	-0.527 (0,91)	-0.633 (0,95)	-0.477 (1,00)	0.792

differences between the mean values of BMD at baseline and after 2 year, data are shown in the Table.

Conclusions: Low BMD was quite rare (14%) in patients with early axSpA. Small frequency of BMD reduction in the Russian cohort of axSpA patients after 2 years of study is probably due to disease activity decrease on anti-inflammatory therapy.

Disclosure of Interest: None declared

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FRI0459 DEVELOPMENT AND VALIDATION OF A SPANISH TOOL FOR SEMI-AUTOMATIC QUANTIFICATION OF SACROILIAC INFLAMMATION BY MAGNETIC RESONANCE IN SPONDYLOARTHRITIS (SCAISS)

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Background: Different systems to quantify inflammatory changes in sacroiliac MRI have been developed.[1, 2] These systems include the Spondyloarthritis Research Consortium of Canada (SPARCC), the Berlin, the Aarhus-Puhakka, and Aarhus-Madsen, the Leeds, the MR Imaging of Seronegative SpA (MISS), Leeds, Sieper/Rudwaleit and Hermann/Bollow scoring systems. In addition, the use of these quantification methods is restricted to clinical trials, since their use in clinical practice is limited due to their complexity, need for trained personal, and prolonged procedural time. The development of computers and data processing software has led to significant advances in methods for image analysis. With the objective to improve interobserver quantification of sacroiliitis while maintaining a practical perspective, our group has developed a semi-automated method to measure bone marrow edema (BME) in MRI images from sacroiliac (SI) joints.

Objectives: The aim of this study is to analyze the validity and reliability of the method.

Methods: The development of the method to quantify inflammation in SI joints involved software selection from a list of potential programs, process-mapping based on discussion, and tuning. Once developed, feasibility (time spent) interobserver reliability (intraclass correlation coefficient), and construct validity (convergent validity) were analysed. Two rheumatologists and a radiologist independently quantified sacroiliitis from SI images from 12 patients with a diagnosis of axial SpA by the new method, and by non-automated methods to rate sacroiliitis (SPARCC* and Berlin). Convergent validity, reliability and feasibility were calculated. (* In the present study, for simplicity reasons and in order to make it closer to the developed technique, the authors modified the SPARCC method by using a single coronal section instead of the standard six consecutive ones).

Results: The interobserver reliability was high, with intraclass correlation coefficients for global score of 0.81 (95% CI: 0.59–0.94). Convergent validity was good, with high correlation with the Berlin (ρ between 0.797 and 0.913) and the SPARCC methods (ρ between 0.566 and 0.897). Mean time employed in the reading procedure was 30 seconds.

Conclusions: The developed semi-automatic technique permits a fast and valid calculation of overall BME lesion at the SI joint on MRI images.

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FRI0460 EXTRA-ARTICULAR MANIFESTATIONS IN PATIENTS WITH AXIAL SPONDYLOARTHRITIS: A CROSS SECTIONAL STUDY FROM SOUTHERN DENMARK

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Background: Axial (ax) spondyloarthritis (SpA) is a heterogeneous group of chronic rheumatic diseases. Ax-SpA is subdivided into two groups referred to as nonradiographic and radiographic (i.e. AS) respectively. Next to the spinal and articular symptoms, many patients with SpA also have extra-articular manifestations (EAM) which contribute to reduced quality of life¹. SpA appears to be more frequent in men than woman in its axial presentations, and in reference to the prototype of the disorder, AS, three male cases are documented for every female case. However, since the introduction of the new ASAS criteria for ax-SpA these differences are no longer so apparent². Nevertheless, little is known of the differential clinical expression of SpA between males and females.

Objectives: The objective of this study was to compare patients with AS and

nr-axSpA stratified by gender, using standardized clinical tools (including patient-reported outcomes (P-ROs)) and C-reactive protein (CRP) level as a biomarker for inflammation.

Methods: Ax-SpA patients were included prospectively and underwent an examination program at one visit. We used ASAS criteria and the modified New Yorker criteria for classification. Information on demography and PROs was obtained. A trained physician performed a clinical examination, and BASMI and the The Spondyloarthritis Research Consortium of Canada Enthesitis Index (SPARCC) was used to enthesitis count. Chi-square and t-tests were used for categorical and continuous variables respectively to test the null hypothesis.

Results: Eighty patients with ax-SpA were included. Table 1 shows the results (mean ± SD or relative frequency) for the comparison of demographic and disease characteristics between clinical subgroups.

	Non-radiographic axSpA males n= 20	AS males n=23	P-value	Non-radiographic axSpA females n= 29	AS females n= 8	P-value
Mean age, years (S.D.)	41.5 ± 15.4	50.6 ± 9.9	0.03	44.0 ± 11.1	47.8 ± 17.3	0.46
HLA-B27 pos. (%)	11 (55)	21 (91)	0.012	13 (45)	8 (100)	0.013
Peripheral arthritis (%)	9 (45)	12 (52)	0.98	14 (48)	7 (88)	0.10
Mean BASDAI (S.D.)	2.5 ± 2.1	2.9 ± 1.9	0.52	4.7 ± 2.2	2.8 ± 2.0	0.043
Mean BASFI (S.D.)	2.1 ± 2.2	2.6 ± 2.2	0.53	3.8 ± 2.1	2.4 ± 2.7	0.12
Mean BASMI (S.D.)	1.2 ± 1.1	2.7 ± 1.6	0.0012	1.3 ± 1.2	1.5 ± 1.9	0.78
Mean CRP, mg/L (S.D.)	6.9 ± 9.6	10.6 ± 17.1	0.20	2.6 ± 2.1	10.6 ± 15.5	<0.001
Mean Pain, VAS 0-100 mm, (S.D.)	27.2 ± 23.0	28.6 ± 23.4	0.29	44.9 ± 23.9	25.9 ± 20.1	0.013
Anterior uveitis (%)	3 (15)	10 (43)	0.05	5 (17)	3 (38)	0.33
Psoriasis (%)	8 (40)	9 (39)	0.97	13 (45)	1 (13)	0.12
IBD (%)	3 (15)	3 (13)	0.61	6 (21)	0 (0)	0.31
Mean SPARCC score (enthesitis)	1.2 ± 1.3	1.0 ± 1.4	0.63	2.0 ± 1.9	0.8 ± 1.5	0.0092

Conclusions: For the PROs, BASDAI and pain were higher in females diagnosed with nr-axSpA, and the CRP was significantly lower in this group. Peripheral and EAMs were slightly equally prevalent in AS and nr-axSpA in men and women except for uveitis, which is slightly more prevalent in AS. Our data show that AS patients were more frequently male than nr-axSpA patients. These results are in line with previous studies showing that male patients with axial SpA have more structural damage on radiographs than female patients. Among women, this study indicate that pain is more pronounced in non-radiographic axSpA than in AS, potentially revealing that chronic widespread pain (e.g. fibromyalgia) might interfere with the diagnostic accuracy of the non-radiographic axSpA subgroup. However, despite the absence of radiographic changes, patients with nr-axSpA have a burden of illness, with self-reported disease activity and functional impairments comparable with those of patients with structural changes consistent with AS.

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FRI0461 **MUSCLE WASTING IN MALE TNF-α BLOCKER NAÏVE ANKYLOSING SPONDYLITIS PATIENTS: A COMPARISON OF GENDER DIFFERENCES IN BODY COMPOSITION WITH DUAL-ENERGY X-RAY ABSORPTIOMETRY**

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Background: Female Ankylosing Spondylitis (AS) patients have different disease characteristics compared to males. This might be explained by differences in body composition (BC), as women have higher total body fat mass, and adipose tissue can produce adipokines and participate in inflammatory and immunological processes.

Objectives: To assess gender differences in BC measured by Dual-Energy X-ray Absorptiometry (DXA) in a cohort of AS patients naïve to TNF-α blockers, and compare the BC with the reference population.

Methods: AS patients (Modified New York Criteria), 18 years old or older, who had a whole body DXA analysis before TNF-α blockers were included. Demographic information and disease activity measures (ASDAS and BASDAI) were reported. Fat Mass (FM) was reported as total FM (sum of trunk, arms, legs, and head), BF% (ratio FM/Total body mass), and Fat Mass Index (FMI= FM kg/height m²).

Fat Free Mass (FFM), calculated as lean mass + bone mineral content, and its index (FFMI kg/m²) were reported. BF%, FMI, and FFMI percentiles, according to the reference population tables, stratified by age and gender, were also reported.

Results: Seventy consecutive patients were included, 60% were men. Baseline demographic characteristics were similar in men and women. Women had significantly higher BF% and FMI, and lower FFMI as absolute values (table 1). The FFMI percentile was markedly low in men (31.7%) (Figure 1). After multivariate analysis, an ASDAS-CRP >3.5 was related with lower FFM in the whole group (β-coefficient -5.1, 95% CI -10.2 to -0.1, P=0.047). ASDAS >3.5 was related to lower fat content in men and to higher fat content in women. The same relationships were found for BASDAI ≥4.

Table 1. Body composition characteristics

	All (N=70)	Male (N=42)	Female (N=28)	P
Age (median years, IQR)	42 (16)	44.2 (15.2)	40.7 (17.6)	NS
BMI (median, IQR)	25.6 (5)	25.9 (4.8)	24.2 (9)	NS
Underweight (%)	0	0	0	—
Normal (%)	48.6	45.2	53.6	NS
Overweight (%)	35.7	47.6	17.9	0.011
Obese (%)	15.7	7.1	28.6	0.021
Fat Mass, kg (mean, SD)	26 (9.3)	23.9 (8.7)	29.2 (9.6)	0.018
Fat Free Mass, kg (mean, SD)	51.1 (9.9)	56.8 (7)	42.5 (7.1)	<0.001
Body Fat % (mean, SD)	33.3 (8.9)	28.9 (7.3)	40 (6.7)	<0.001
Fat Mass Index (median, IQR)	8.5 (3.6)	8 (4)	9.7 (6)	0.001
Fat Free Mass Index (median, IQR)	17 (2.5)	17.7 (1.8)	15.1 (1.8)	<0.001

BMI = Body Mass Index, NS = not significant.

Conclusions: Muscle wasting, measured as low FFMI compared to the reference population, was found in male TNF-α blocker naïve AS patients, especially in those with active disease. Women had higher volumes of body fat than men, but near the median of the reference population. The relationships between fat content and disease activity support the complex association between adipose tissue and inflammation.

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FRI0462 **THE PISTOL-GRIP DEFORMITY IS MORE FREQUENT IN PATIENTS WITH AXIAL SPONDYLOARTHRITIS**

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Background: Femoroacetabular impingement (FAI) is characterized by early pathologic contact of the proximal femur with the acetabulum. Pincer impingement is the acetabular cause of FAI. Whereas cam deformity seen as a flattening of the anterior contour of the head/neck junction or an osseous hump leading a decreased femoral head/neck offset. Patient with FAI presents with a hip or a trochanteric pain usually in the sitting position or during or after activity. It might also be an important cause of hip osteoarthritis (OA).

Objectives: Therefore in this study we evaluated the frequency of pistol-grip deformity (PGD), described as the most characteristic feature of cam-type FAI, in axial spondyloarthritis (axSpA) patients as a potential alternative cause of hip or trochanteric pain.

Methods: A total 180 patients (107 [59%] male, mean age 41.9±12.8 years) with axSpA according to ASAS criteria and 198 patients (120 [61%] male, mean age 40.5±14.8 years) admitted to the emergency department (mostly due to trauma) and who had pelvic X-ray were included in the study. Patients with hip OA, hip prosthesis, acetabular protrusion or who have radiographs taken improper technique were excluded. An experienced radiologist assessed all anteroposterior pelvic radiographs. PGD was determined by demonstration of spherical or non spherical shape of femur head on AP pelvic radiography.

Results: The axSpA group consists 135 ankylosing spondylitis and 45 non-radiographic axSpA patients. The mean duration of symptoms was 13.8±11.3