Twelfth International Congress on Spondyloarthritides

September 9–11, 2021

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Abstracts

Invited Lectures

INV2

PAIN AND CONSEQUENCES FOR SPONDYLOARTHRITIS

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Introduction. Pain is a hallmark of axial spondyloarthritis (axSpA). From a clinical perspective, several attributes of pain are distinguished that help clinicians to relate pain to underlying mechanistic causes. Important attributes are the location, timing, type and chronicity of pain. Also factors that can relieve or exacerbate pain are relevant in attempts to causal attribution. The integrated information about pain helps clinicians to diagnosis, to monitor course of axSpA (disease activity, damage, nociplastic pain), and to make decisions on pharmacological or non-pharmacological treatments.
Methods. First an overview of the epidemiology of pain in axSpA will be provided. Next, an overview of construct validity and clinimetric properties (responsiveness) of pain measurement instruments that have been used in axSpA will be discussed. The emphasize will be on the associations between available pain measurement instruments and various outcomes such as disease activity (ASDAS, MRI inflammation), radiographic damage, physical function, fatigue, depression, work participation will be made. Finally, clinical reflections on pain and 'remaining' pain in relation to over/under- diagnosis and treatment will be made.
Discussion. Pain in axSpA is a complex construct and seems to be a feature as well as a comorbidity of the disease.

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INV3

COULD GENETICS BE USEFUL FOR CLINICAL PRACTICE?

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Over the last half-century, HLA-B27 proved to be one of the most useful biomarkers in rheumatology practice. However, epidemiological studies predicted that SpA genetic grounds were much wider than HLA-B27 itself. This prompted the search for additional genetic factors that could help in patient's identification and management. This presentation will focus on expectations from the clinical practice point of view and how they might be reached by deciphering the complex genetic architecture of the disease.

Acknowledgements. GEFGS genetic research is currently supported by an unrestricted grant from UCB Pharma.

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INV4

SYNDROMES AND RARE DISEASE, A TOOLKIT FOR UNDERSTANDING SPONDYLOARTHRITIS

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The identification of frequent genetic variants involved in the determinism of spondyloarthritis has largely progressed thanks to the whole genome screening carried out within the framework of international consortia. Nevertheless, the understanding of the functional consequences of these variants remains limited. In addition, the heritability attributable to these genetic variants associated with predisposition to SpA is to date estimated at less than 25%. In this context, the question arises of the role of rare genetic variants, not explored by GWAS approaches, in the genetic determinism of SpA. Being rare, these variants cannot explain the missing heritability of SpA. However, their identification could lead to the identification of new pathophysiological pathways in the determinist of SpA. Similar approaches have been proposed in IBD, or in certain vasculitis such as relapsing polychondritis in which certain rare genetic variants explain some specific clinical forms of these affections. The role of rare variants involved in extreme phenotypic forms of SpA such as patients with a "bamboo spine" for example could thus potentially generate new pathophysiological hypothesis and new therapeutic targets.

INV5

OPPORTUNITIES FOR EARLY REMISSION IN SPONDYLOARTHRITIS: A LONG-LASTING EFFECT?

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Introduction. Spondyloarthritis (SpA) represents a common form of the inflammatory rheumatic diseases. The use of biologic and targeted synthetic therapies have drastically improved clinical responses in SpA with approved indications in ankylosing sponylitis (AS) and psoriatic arthritis (PsA) for TNF, Il-17, IL12/IL-23 and JAK inhibitors. In particular, the efficacy of the TNF inhibitors infliximab, etanercept, adalimumab, certolizumab pegol and golimumab has been demonstrated across the entire SpA spectrum including axial SpA and PsA. Over the past decade, several studies have shown improved therapeutic responses in early versus longstanding forms of various rheumatic diseases. In axial SpA, TNF inhibitors (TNFi) are also effective in early stages of disease. Hence, studies in patients with non-radiographic axial SpA (nr-axSpA) have demonstrated at least similar, if not better, efficacy responses compared to treatment in a more advanced stage of the disease (1-4). Trials in AS have been set up to evaluate the possibility of withdrawal of TNF inhibitors. However, in most cases discontinuation of TNF blockers after achieving a status of sustained low disease activity or remission led to clinical relapse within a few months (5-10).
Despite this, and also in view of regulatory agencies' requests to demonstrate need for continued therapy, several trials with TNFi in early and non-radiographic axSpA failed the possibility of discontinuation of therapy once clinical remission was achieved (11-13). One of the difficulties and possible reasons of failure of this treatment strategy in axSpA is the determination of an exact symptom duration of axial symptoms like inflammatory low back pain. In contrast, in peripheral disease (arthritis, dactylitis and enthesitis) patients can indicate much more accurate their symptom duration.
There are currently no data on ability to induce drug-free remission in early peripheral SpA (pSpA), although a fast relapse was observed in patients with longstanding pSpA after TNFi discontinuation (14). In this study we tested the window of opportunity hypothesis in very early pSpA by examining the ability to induce drug-free sustained clinical remission after an induction therapy with golimumab and to identify patient characteristics predicting sustained drug-free remission.
Methods. Eligible patients were ≥18 years and were diagnosed with pSpA. All patients fulfilled the ASAS classification criteria for pSpA and had symptom duration <12 weeks. Sustained clinical remission was defined as the absence of arthritis, enthesitis and dactylitis at two consecutive major visits, after which treatment was withdrawn. Patients were prospectively followed to assess the rate of sustained drug-free clinical remission and clinical relapse.
Results. 82% (49/60) of patients fulfilled sustained clinical remission criteria after an induction treatment with golimumab. Thirty patients already reached this status at week 24, with an additional 11 and 8 at weeks 36 and 48 respectively (15). All patients had at least a follow-up of 2.4 years after drug withdrawal. 53% (26/49) of patients are still in drug-free remission. Inability to sustain drug-

free remission was associated with the presence of psoriasis and poly-articular disease (SJC≥5).

Conclusion. In axial SpA, TNF inhibitors are also effective in early stages of disease, however, in most cases discontinuation of TNF blockers after achieving a status of sustained low disease activity or remission led to clinical relapse within a few months. Anti-TNF treatment in very early pSpA results in a remarkably high rate of sustained clinical remission with more than half of patients remaining in remission after therapy withdrawal, highlighting a defined window of opportunity permitting drug-free remission induction.

Acknowledgements. This research was carried out as an Investigator Initiated Study with support from Janssen Pharmaceutica NV, who also provided the study medication.

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INV7

NEUTROPHILS AND NETS AS ORCHESTRATORS OF INFLAMMATORY DISEASES

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Aim. To detect neutrophil extracellular traps (NETs) in various inflamed tissues. We primarily focused on vessels, ducts of exocrine glands and epithelial surfaces. The analyses included the role of NETs in vascular and ductal occlusion, shielding, proteolytic degradation of inflammatory mediators like cytokines, chemokines, and histones as well as in non-canonical calcification.

Material and Methods. We used immune fluorescence, video microscopy and enzyme detection to identify neutrophil extracellular traps and associated enzymes/proteins in tissue specimens. ELISAs, western blot and mass spectrometry analyses were employed to quantify remnants of neutrophil extracellular traps in the circulation. Cell-free DNA, DNA complexed to neutrophil elastase or myeloperoxidase as well as citrullination of plasma proteins served as indicators of NET degradation products in tissue lysates, body fluids and blood plasma (1).

Results. Here we show some selected examples of NET formation in the resolution of inflammation and in NET- driven pathologies.

Gout. When neutrophils recognize urate monosodium (MSU), the causative agent of gout, they phagocytose these needle-shaped crystals and form individual NETs. During this process, a number of pro-inflammatory cytokines are released from neutrophils, which trigger an inflammatory response; further neutrophils are being recruited. When NETs reach a high density, they tend to agglomerate and form extensive co-aggregates of NETs with MSU (aggNETs). After an initial pro-inflammatory phase, the aggNET-associated SERPIN-resistant proteases break down most of the pro-inflammatory mediators and orchestrate the resolution of the inflammation (2, 3).

Pancreatitis. Few neutrophils enter the acini of the pancreatic exocrine machinery under homeostatic conditions. Due to the high bicarbonate concentration and the basic pH of the pancreatic fluid, the neutrophils immediately form NETs. The latter are flushed into the duodenum by the pancreatic fluid and clean the pancreatic ducts from invading bacteria. In IL17 transgenic mice, the number of neutrophils invading acini increased dramatically. The NETs formed sticky aggregates that clogged the pancreatic ducts. This blockade of the fluid flow, caused hydrodynamic pressure and self-activation of the pancreatic fluid upstream of the obstacle and cannot wash back the invading bacteria. As a result, acute pancreatitis occurs. Genetic ablation of protein arginine deiminase 4 (PADI4) reduced chromatin decondensation during NET formation and protected the mice from pancreatitis. In some human biopsies from patients with acute pancreatitis, ductal occlusions by aggNETs were observed (4, 5).

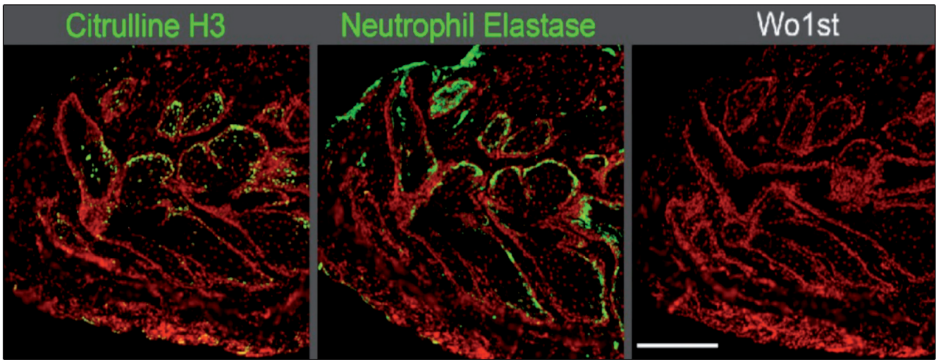
Dry eye disease. Similar to the pancreas, the holocrine meibomian gland and its duct system are monitored by neutrophils that invade the acini and form NETs. In pathological conditions such as chronic local inflammation, local neutrophilia drives the formation of aggNETs, which clogs the ducts of the meibomian gland (Fig. 1). The resulting hydrodynamic pressure upstream of the obstruction destroys the acinar structure and prevents the meibum from flowing. The oil film shrinks, tears evaporate and a meibomitis-related dry eye disease develops. However, there are additional avenues for emergence of this disease (6, 7).

Sialolithiasis. Similar to the exocrine pancreas and the holocrine meibomian gland, the salivary glands are also monitored by neutrophils, which immediately release their DNA in the bicarbonate-rich saliva. In the case of chronic inflammation (*e.g*. local infections) and neutrophilia, aggNETs block the salivary gland ducts. Due to the high calcium ion content of saliva, the aggNETs tend to calcify leading to the formation of salivary stones, which often have to be removed surgically (8).

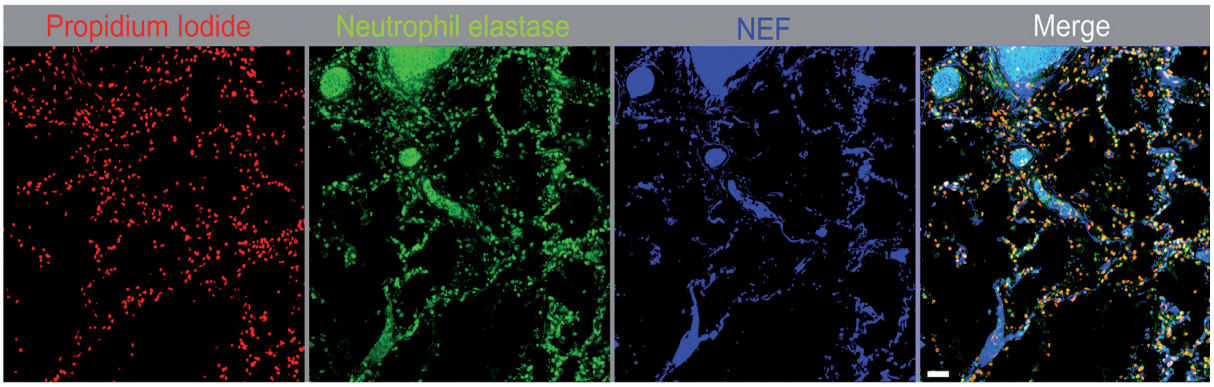
Vascular occlusions. In the event of hyperinflammation (*e.g*. sepsis and COVID19), the blood-borne NET formation was observed to clog the vessels, especially those of the capillary beds (Fig. 2). NET-driven non- canonical coagulation drives pathological changes and aggravates hyperinflammatory diseases (9. 10).

Ectopic calcification. The DNA in the nucleus of a living cell is located in an environment rich in magnesium (mM range) and low in calcium (nM range) and is to be regarded as a magnesium salt. This changes dramatically when cell-free DNA gets into the calcium-rich (mM) interstitium, blood plasma, or exocrine ducts. Here some of the magnesium ions are replaced by calcium. It is fair to speculate that the calcium salt of DNA forms a nidus for ectopic calcifications. This explains why many of the latter contain DNA and neutrophil elastase. Of course, this mechanism is not NET-specific and other pathways planting cell-free DNA in tissues may also trigger ectopic calcifications.

Therapeutic options. In homeostasis, NETs are broken down by the concerted action of phagocytes and DNA- degrading enzymes such as DNase1, DNase1L1, DNase1L2 and DNase1L3. These DNases show a tissue-specific profile; DNase1



INV7. Fig. 1. Aggregated NETs (aggNETs) occlude ducts of meibomian glands. Biopsy samples from a patient with trichiasis shows the presence of citrulline H3 (citH3) and neutrophil elastase (NE) colocalizing with extracellular DNA obstructing the duct outlet orifice and acini of the meibomian gland. DNA (propidium iodide; red), citH3 and NE (immune staining, green). Scale bar represent 100 μm.



INV7. Fig. 2. Neutrophil extracellular traps (NETs) occlude vessels in capillary beds of alveolar regions. Paraffin sections of lung biopsies from deceased patients with COVID-19 were fluorescently labeled for DNA (propidium iodide; red), neutrophil-elastase (immune staining, green), native endogenous fluorescence (blue). NETs were observed to occlude several microvessels in the alveolar regions. Scale bar represents 50 μm.

and DNase1L3 are active in the blood plasma. DNase1 is already approved for the inhalation treatment of cystic fibrosis. In addition, it has been used in several individual healing attempts with a favorable safety profile.

Conclusions. NETs fulfil important functions in bacterial defense, shielding of necrotic areas, wound closure and in the resolution of inflammation. From the facts that the ability to form NETs in mammalians is evolutionary stable and natural deficiencies are rare one can conclude that NET formation is beneficial to the body. However, we should view NETs as "double-edged swords. Indeed ,NETs tend to aggregate and occlude tubular structures like blood vessels and the ducts of exocrine glands. They are able to initiate ectopic calcifications as well as stones in various organs.

Acknowledgements. This work was supported by the German Research Foundation (DFG) 2886 PANDORA Project-No. B03; CRC1181 Project-No. C03; TRR241 Project-No. B04, by the Volkswagen-Stiftung Grant 97744 and the K&R-Wucherpfennig-Stiftung.

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INV10

THE ABSOLUTELY CORRECT WAY TO ASSESS DISEASE MODIFICATION IN 2021

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Titles of scientific lectures pretend to summarize the key message of a lecture so that the audience can decide whether attending a lecture will be of interest to them.

Organizers of scientific symposia usually have something in mind, a theme, that they want to address and for which they think they know the best possible expert. Prepared abstracts of lectures, though rarely read, serve to mitigate expectations and to bring organizers' views and lecture-titles' pretentions into equilibrium.

The absolutely correct way for assessing disease modification in whatever rheumatic disease does neither exist nor will it ever be invented. The theme (disease modification), however, appears to be a conundrum in the field of axSpA and is rapidly on its way to become a never ending story.

In this lecture I will try to make people aware that *absolutism* in assessing disease progression is a *dead end*. And when the audience has arrived at that level, I will introduce a relatively new kid-on-the-block, *causal inference*, with which we can try to get as far as we can in order to bake cake from all of the ingredients (studies) that have been provided in the field of axSpA in the past.

For those who read this abstract in preparation of the symposium, I can promise only one thing: *you have probably not heard this before*.

INV12

NEW IMAGING TOOLS IN SPONDYLOARTHRITIS

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Early diagnosis of ankylosing spondylitis (AS) is still tempting since objective measures to assess disease activity are often negative. It can take up to 5 years after initiation of clinical symptoms before structural changes become apparent on conventional X-rays. MRI provides highly sensitive visualization of inflammation, but detection levels in early spondyloarthritis (spA) are varying. Another clinical temptation is early treatment evaluation of AS. An important outcome measure is therapeutic efficacy on bone formation in vertebral column and sacro-iliac joints. Imaging can also be applied for detection of (progression of) bone formation in and around peripheral joints, associated with chronic enthesitis in SpA and being more prominent in psoriatic arthritis (psA). Conventional X-rays only allow for assessment of bone formation over a time span of at least 2 years. In this presentation, opportunities with new upcoming imaging techniques to address above mentioned clinical issues will be discussed in relation to longer existing imaging techniques. In particular, the novel technique [^{18}F]Fluoride PET-CT (1, 2) will be discussed as opportunity for early assessment and monitoring of axial and peripheral new bone formation as reflection of disease activity in both AS and PsA.

Funding. The investigator initiated scientific research on [^{18}F]Fluoride PET-CT has been financially supported by ReumaNederland, EULAR Foreum, Pfizer and Novartis.

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INV14

THE DATA ANALYST: HOW TO LINK CLINICAL OBSERVATIONS WITH NEW KNOWLEDGE GENERATION

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Introduction/aims. Electronic Health Records (EHRs) offer a wealth of observational data which can be translated to improve. Machine-Learning (ML) methods are efficient at data extraction, capable of processing the information-rich free-text physician notes in EHRs. The clinical diagnosis contained therein represents physician expert opinion and is more consistently recorded than classification criteria components. The connection with biological information such as genetics provides novel opportunities to transform our care.
I will provide two examples of EHR data handling:

A) Investigate the overlap and differences between Rheumatoid Arthritis patients as identified either from EHR free-text through extraction of the rheumatologist diagnosis using machine-learning (ML) or through manual chart-review applying the 1987 and 2010 RA classification criteria (1, 2).
B) Devise a method to convert genetic information into simple probabilities discriminating between multiple diagnoses in patients presenting with synovitis (3).

Methods.

A) Since EHR initiation, 17,662 patients have visited the Leiden rheumatology outpatient clinic. For ML, we used a Support Vector Machine (SVM) model to identify those who were diagnosed with RA by their rheumatologist. We trained & validated the model on a random selection of 2,000 patients, balancing PPV and Sensitivity to define a cutoff, and assessed performance on a separate 1,000 patients. We then deployed the model on our entire patient selection (including the 3,000). Of those, 1,127 patients had both a 1987 and 2010 EULAR/ACR criteria status at one year after inclusion into the local prospective arthritis cohort. In these 1,127 patients we compared the patient characteristics of RA cases identified with ML and those fulfilling the classification criteria.
B) We developed G-Prob, which calculates for each patient the genetic probability for each of multiple possible diseases. We tested this for synovitis-causing diseases (rheumatoid arthritis, systemic lupus erythematosus, spondyloarthropathy, psoriatic arthritis and gout). After validating in simulated data, we tested G-Prob in biobank cohorts where genetic data was linked to electronic medical records:
   I. 1,200 patients identified by ICD-codes within eMERGE database (n= 52,623);
   II. 245 patients identified through ICD codes and chart review within Partners Biobank (n=12,604);
   III. 243 patients selected prospectively with final diagnoses by medical record review within Partners Biobank (n=12,604).

Results.

A) The ML model performed very well in the independent test set (sensitivity=0.85, specificity=0.99, PPV=0.86, NPV=0.99). In our selection of patients with both EHR and classification information, 373 were recognized as RA by ML and 357 and 426 fulfilled the 1987 or 2010 criteria respectively. Eighty percent of the ML-identified cases fulfilled at least one of the criteria sets. Both demographic and clinical parameters did not differ between the ML extracted cases and those identified with EULAR/ACR classification criteria.
B) G-Prob's discriminative ability was high in all cohorts with pooled AUC=0.69 [95%CI 0.67-0.71], 0.81 [95%CI 0.81-0.81] and 0.84 [95%CI 0.81-0.86]. We observed that 100% of instances in our prospective group (III), at least one disease could be ruled out, and that in 45% of patients a most likely diagnosis could be identified with a 64% positive predictive value. We observed that in 35% instances the clinician's first diagnosis was incorrect. Initial clinical diagnosis yielded an MacFadden R^2 of 39% for final disease prediction which improved to 51% (p<0.0001) by adding the G-Prob.

Conclusions. With ML methods we enable fast patient extraction from the huge EHR resource. Our ML algorithm accurately identifies patients diagnosed with RA by their rheumatologist. This resulting group of RA patients had a strong overlap with patients identified using the 1987 or 2010 classification criteria and the baseline (disease) characteristics were comparable. ML assisted case labelling enables high-throughput creation of inclusive patient selections for research purposes.
By converting genotypes into a simple interpretable probability value, we can discriminate rheumatic diseases. Therefore, genotypes available prior to clinical visit can be considered part of patient's medical history which can be used to improve precision medicine and diagnostic efficiency in clinical practice.

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Acknowlegdements. Co-authors on the original work: Tjardo D. Maarseveen, Marc P. Maurits, Ellis Niemantsverdriet, Annette H. M. van der Helm-van Mil, Saskia le Cessie Chikashi C. Terao, Kamil Slowikowski, Jing Cui M.D. PhD, Tom W.J. Huizinga Karen H. Costenbader, Katherine P. Liao, Elizabeth W. Karlson, Soumya Raychaudhuri

INV15

COMPARTMENTALIZATION, PERSISTENCE AND CONSERVED SHARED MOTIFS OF DOMINANT (REGULATORY) T CELL CLONES IN AUTOIMMUNE INFLAMMATION

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Introduction. In autoimmune diseases, inflammation is often limited to specific target tissues, but within tissues, multiple sites can be affected. Important outstanding questions are whether affected sites are infiltrated with the same (pathogenic) T-cell clones, whether these clones persist over time and whether they share specific motifs.
Methods. In Juvenile Idiopathic Arthritis it is possible to analyze large number of cells derived from the inflamed joints. Here, we performed T cell receptor (TCR) sequencing to study local (hyper)expansion T(reg)-cells and the existence of an TCR immune fingerprint based on shared motifs with a newly developed algorithm. Samples were taken from different joints affected at the same time, and joints that were affected multiple times during the relapsing remitting course of the disease.
Results. We observed a strong overlap between dominant T-cell clones, especially Treg, in inflamed joints affected at the same time. Some of the most dominant clones could also be detected in circulation. Dominant Treg and Teff cell clones were found to persist over time and to expand during relapses, even following full remission of the disease. Finally, despite having little overlap between patients for the exact TCR sequence, we found several shared immune fingerprints, based on sequence motifs, especially in the Treg.
Conclusions. These data suggest that in autoimmune disease there is (dominant)

auto-antigen driven expansion of both Teff and Treg clones that are highly persistent and (re)circulating. Therefore, these dominant clones can be interesting therapeutic targets. Furthermore, we demonstrate that TCR motif analyses may give insights in disease-specific TCR patterns.

Acknowledgements. This work was supported by a VIDI grant from ZonMw The Netherlands.

INV19

EMERGING IMAGING TECHNIQUES IN SPONDYLOARTHRITIS: DUAL-ENERGY COMPUTED TOMOGRAPHY AND NEW MRI SEQUENCES

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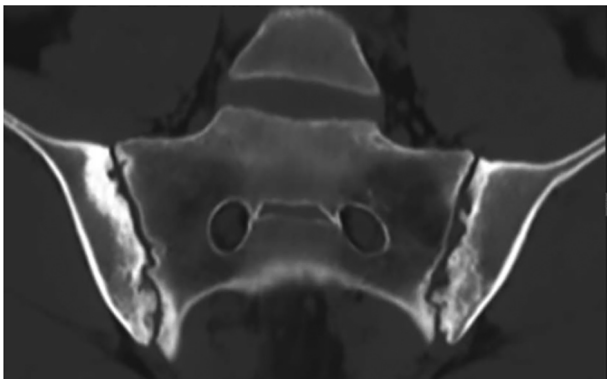
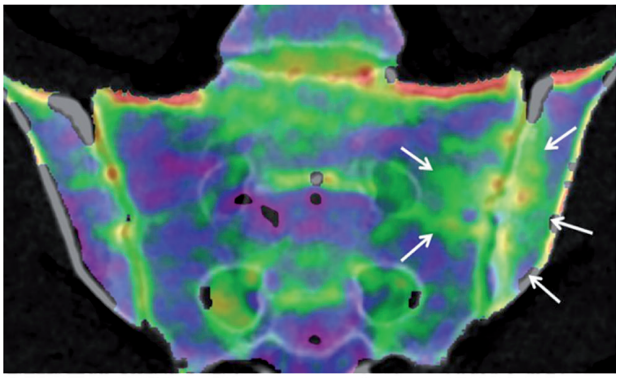
Introduction. Imaging of the sacroiliac joint plays an important role in diagnosis, treatment guidance and follow-up of patients with axial spondyloarthritis. New imaging techniques are emerging, changing the way clinicians look at the sacroiliac joint.
Results. When referring patients for imaging of the sacroiliac joints, clinicians focus in particular on the presence of bone marrow edema and erosions. These exact hallmarks of spondyloarthritis can be depicted by novel imaging techniques. CT has been largely abandoned since it comes with a high radiation burden, and did not allow to detect active inflammation. With the introduction of dual-energy computed tomography, it has become possible to visualize bone marrow oedema on CT in patients with a contraindication for MRI. Moreover, low dose CT allows for detection of structural lesions at a minimal radiation burden, about equal to radiography of the pelvis.
Perhaps the most appealing innovation is the development of new MRI sequences, that allow to depict structural lesions with a much higher specificity as compared to the T1-weighted images that are currently used in clinical practice. Synthetic CT (boneMRI) allows for a one-stop-shop, with optimal depiction of structural and active lesion in a single MRI examination. Gradient echo and SWI sequences also allow to detect erosions with high confidence.
Last but not least, diffusion-weighted MRI allows for true quantification of the bone marrow oedema without the use of contrast media. This enables a more precise detection of smouldering oedema and allows for more precise follow-up of patients with active inflammation of the sacro-iliac joints.
Conclusions. Radiology is a fast evolving field. Dual-energy CT allows for visualization of bone marrow oedema. New MRI sequences allow for better detection of structural lesions as compared to T1 weighted MR images. Diffusion-weighted MRI enables detection of smouldering active inflammation.



INV19. Fig. 1. Bone MRI of the SI joint shows structural lesions: sclerosis and erosions are seen bilaterally.



INV19. Fig. 2. Dual-energy CT shows bone marrow oedema as green signal adjacent to the left sacroiliac joint (arrows).

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INV20

NEW PERSPECTIVES FOR SPONDYLOARTHRITIS: IMPACT OF COMORBIDITIES ON CLINICAL MANAGEMENT

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Introduction. Spondyloartritis (SpA) are chronic inflammatory joint diseases, characterized by a large clinical variability. Beyond the musculoskeletal involvement, SpA are associated with extra-articular manifestations and comorbidities that might increase the burden of the disease. The interest on the burden of comorbidities for these conditions has grown in the last years. In fact, in the last ASAS-EULAR recommendations on the management of axial SpA (1) and in the last EULAR recommendations on Psoriatic Arthritis (2) (PsA), comorbidities are listed among the overarching principle, going toward an increasingly patient centric vision in which the treatment should be individualized. According with this concept it was recently proposed the concept of Multimorbidity in PsA (3): in the multimorbidity concept, the patient is the central concern and all coexisting diseases are of equal importance. Consequentially, the management and treatment should be focus on the patient as a whole and effectiveness should be quantified by overall indicators such as quality of life or physical function.
Methods. This is a narrative review based on the last five years published papers about SpA/PsA and Comorbidities, finalized to the invited lecture of the 12th international congress of SpA.
Results. Focusing on axial-SpA, a recent systematic review and meta-analysis (4) (combined sample size 119427 patients), described the arterial hypertension like the most prevalent comorbidities, followed by hyperlipidaemia and obesity. When analysed the impact of comorbidities on disease activity and function, it was found that a higher number of comorbidities were associated with higher disease activity, functional impairment, poorer quality of life, less work productivity and mortality. In a recent analysis of the Assessment in SpondyloArthritis international Society (ASAS) COMOrbidities in SPondyloArthritis (ASAS-COMOSPA) dataset, the relationship between the Rheumatic disease Comorbidity Index (RDCI) and Bath Ankylosing Spondylitis Functional Index (BASFI), EQ5D and work ability was assessed (5). A higher RDCI was associated with higher BASFI, a reduction in quality of life, and for every unit increase in the RDCI, the odds of being in employment were reduced by 17%.
In a recent comparison study between PsA and non-PsA SpA, the comorbidities and malignancies resulted increased in patients with PsA compared with non-PsA SpA (6). This could raise some question about the different burden that the same comorbidity could have on different type of SpA.
Focusing on PsA, cardiometabolic comorbidities are the most incident/prevalent described ones; in fact, a recent meta-analysis showed that cardiovascular and cerebrovascular morbidity is increased by 43% and 22% respectively in PsA patients compared with the general population (7). Furthermore, in clinical practice, comorbidities were described like factors that could have an impact on PsA disease activity when assessed by Disease Activity for Psoriatic Arthritis (8). Furthermore, obesity was associated with a lower probability to achieve and sustain a Minimal Disease Activity in PsA (9). The presence of comorbidities in PsA was also associated with shorter Tumor Necrosis Factors inhibitors persistence and reduced clinical response rates (10).
Conclusions. Comorbidities are still an unmet need in SpA and PsA: they seem to affect the disease activity, function and quality of life. Even if some differences are reported based on SpA type, comorbidities should be always evaluated going toward a tailored medicine to understand what is the target to treat.

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Oral Presentations

O1

COMPREHENSIVE EPIGENOMIC PROFILING REVEALS DISEASE-SPECIFIC CHROMATIN STATES IN ANKYLOSING SPONDYLITIS

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Introduction. Ankylosing spondylitis is the archetypal spondyloarthropathy, characterised by inflammatory arthritis of the spine and sacroiliac joints that frequently results in bony fusion. Over 100 genetic associations are known, but the exact mechanisms and SNPs involved are poorly understood. Examples of coding polymorphisms exist, such as *IL23R* and *ERAP1*, but in the majority of cases it is likely that the functional SNP lies within a non-coding regulatory region. We have performed a comprehensive epigenomic profiling study comparing specific immune cell subsets from a cohort of carefully phenotyped ankylosing spondylitis patients with those from healthy volunteers, with the aim of identifying functional SNPs and the cell type in which they act.
Methods. We combined measurements of gene expression (total-RNA-seq), chromatin accessibility (ATAC-seq) and enrichment of promoter (H3K4me3) and enhancer (H3K4me1, H3K27ac) histone marks (ChIPmentation) using ChromHMM. This allowed us to enumerate a model of AS-specific characteristics of chromatin structure. We also performed Capture-C analysis to link functional SNPs with cognate genes.
Results. We have detected thousands of AS-specific regulatory regions, the majority of which are specifically found in CD14+ monocytes. This is driven by a combination of epigenetic changes and expression of non-coding RNAs. We demonstrated that several such regulatory regions occur at genetically associated loci and have shown chromosome looping events between such loci and their cognate genes. We illustrate these mechanisms with specific examples of regulatory regions including *ETS2*, *RUNX3*, and *BACH2*.
Conclusions. This work illustrates the power of analysing specific cell subsets and using patient populations to follow up GWAS results, and informs new biological pathways that have future therapeutic potential.

O2

PHENOTYPIC, HISTOLOGIC AND IMAGIOLOGIC CHARACTERIZATION OF TRANSMEMBRANE TUMOR NECROSIS FACTOR TRANSGENIC MICE

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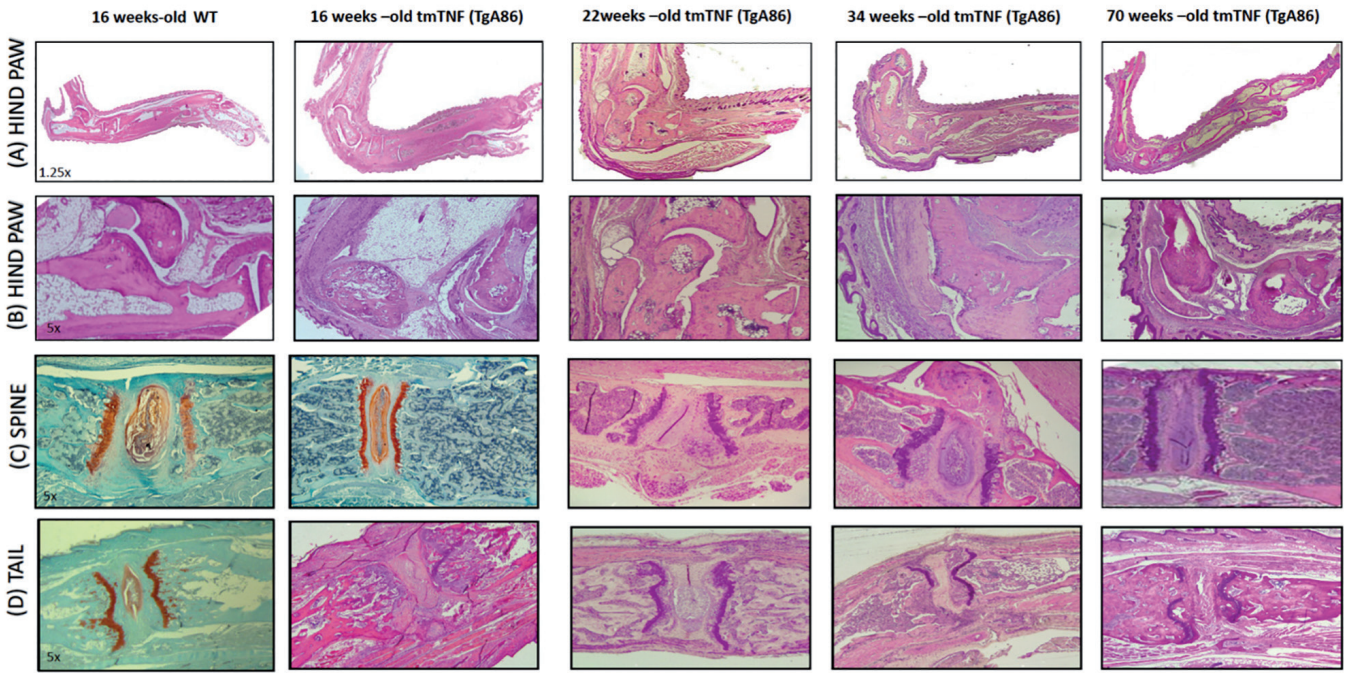
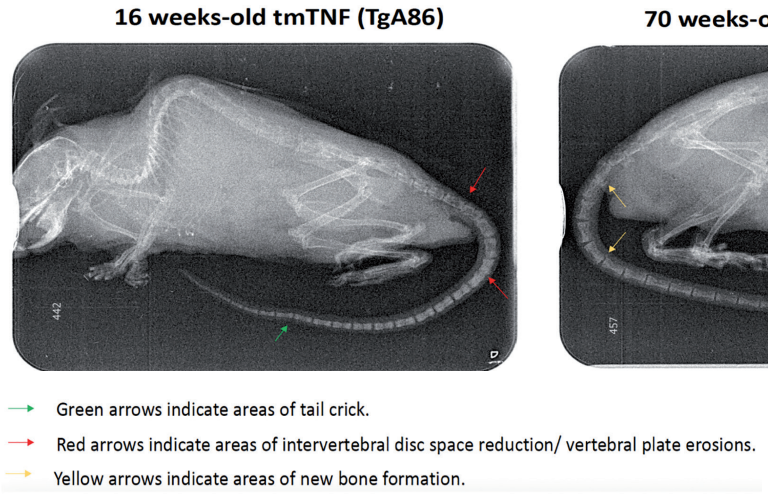
Aim. To characterize tmTNF(TgA86) mice that overexpress mutant transmembranar murine tumor necrosis factor (TNF) and mimic peripheral and axial spondyloarthritis (SpA) features.
Methods. tmTNF(TgA86) mice and littermate controls (WT) were weekly monitored from 4 weeks-of-age (woa) for body weight and macroscopic peripheral arthritis. Mice were euthanized at 16/22/34/70 woa for histology. Hind and forepaws, spine and tail were harvested, and inflammation and bone damage semiquantitative scores were applied. X-Rays were performed, after euthanasia, to 16 and 70 weeks-old tmTNF(TgA86) mice (VistaScan Combi View). To assess areas of increased tmTNF expression, a TNF inhibitor (certolizumab pegol-like product mice equivalent (AB501)) flurochrome-labelled with alexa680 was administrated to 3-tmTNFmice and 3-WT at 26 woa. Mice were anaesthetized and bioimmunoflourescence (Xenogen-IVIS200) read at 1/3/6/12/24/30 hours.
Results. Peripheral arthritis was characterized by progressive swelling and deformity of hind and paws from 4 woa, involving initially the ankles and wrists, and later the tarsus/carpus and digits. The maximum macroscopic peripheral arthritis score was reached at 12-16 woa. Progressive spine deformation, displaying dorsal hunchback and cricked tail was observed. Hampered global growth was translated into lower weight and shortening of mice length (including tail), comparing to



O2. Fig. 1. Peripheral (hind paws) and axial (spine and tail) histopathologic characterization of tmTNF (TgA86) at 16, 22, 36 and 70 weeks-old, and wild-type at 16 weeks-old (comparator).



O2. Fig. 2. Radiography of 16 and 70 weeks-old tm TNF(TgA86).

littermates. Histologic features, throughout disease progression, at peripheral and axial skeleton are described in Fig. 1. Radiographic assessment showed diminished intervertebral space and vertebral plate erosions at the proximal aspect of the tail, and segmental tortuosity, already noticed at 16 woa. In tmTNF(TgA86) at 70 woa incomplete bridging syndesmophytes could be depicted (Fig. 2). Biofluorescence images showed higher uptake of AB501 in the paws and proximal/distal aspects of the tail when comparing with WT non-inflamed areas.

Conclusions. tmTNF(TgA86) mice show phenotypic, histologic, and radiographic features that resemble human SpA. These are associated with a long tmTNF(TgA86) lifespan which can be attractive for assessing new SpA therapeutic interventions.

Wild type at 16 weeks-old: No evidence of inflammation at the synovium or entheses in peripheral joints, spine or tail. **16 weeks-old tmTNF (tgA86)**: in the hind paws, severe inflammatory infiltrate of the enthesis, synovium and periarticular tissues, with erosions of the tibia and tarsal bones. In the spine, mild inflammatory infiltrate at the periphery of the anulus fibrosus with moderate osteitis, absence of erosions and ectopic chondrogenesis. In the tail, moderate to severe inflammatory infiltrate at the periphery of anulus fibrosus and connective tissue, with marginal and central erosions on the vertebral plates. **22 weeks-old tmTNF (tgA86)**: persistency of inflammation and erosions in the hind paws. Severe osteitis and moderate infiltrate at the periphery of anulus fibrosus in the spine. Severe osteitis with marked inflammatory infiltrate at the periphery of anulus fibrosus and ectopic chondrocytes between the cartilage endplates and laterally to the anulus fibrosus in the tail. **34 weeks-old tmTNF(tgA86):** in the hind paws, worsening of enthesitis and progression of erosions. In the spine, severe enthesitis and osteitis with marginal erosion and ectopic chondrogenesis. In the tail, marked enthesitis, with marginal and central erosions of the vertebral plates. **70 weeks-old tmTNF(tgA86)**: in the hind paws, anterior projection of tarsal bones with persistence of enthesitis and progression of erosions with osteolysis of the distal aspect of the tibia. In the spine, severe osteitis with mild enthesitis. In the tail, severe enthesitis, with marginal and central erosions of the vertebral plates. Moreover, histological findings at the periphery of the intervertebral disc suggestive of new bone formation.

O3

MHC HAPLOTYPE CONTROLS DEVELOPMENT OF IL-23 MINICIRCLE-INDUCED MURINE SPONDYLOARTHRITIS

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Introduction. Arthritis induced by systemic overexpression of IL-23 is an established mouse model of spondyloarthritis. Tissue-resident IL-23 receptor expressing γδ T cells are thought to play a critical role in this model. We found that *H-2* (mouse MHC) congenic B10.RIII mice but not the background strain C57BL/10 (B10) or the closely related C57BL/6 (B6) reference strain develop arthritis upon hydrodynamic IL-23 minicircle injection. *Cia8* on chromosome 10, a "contaminating" interval in the B10.RIII genome derived from the *H-2* donor strain RIII, was previously shown to control collagen antibody induced arthritis. We set out to genetically interrogate the role of *Cia8* and *H-2* in IL-23 minicircle-induced murine spondyloarthritis.
Methods. Informative crosses were set up between B10.RIII ($Cia8^{r/r}.H\text{-}2^{r/r}$) and B10 ($Cia8^{b/b}.H\text{-}2^{b/b}$) and between B10.RIII and B6 ($Cia8^{b/b}.H\text{-}2^{b/b}$), respectively. Genotyped adult male mice were hydrodynamically injected with 50 ng IL-23 EEV (System Bioscience) and blindly monitored for the development of arthritis every other day for 2 weeks. At the end of the study, IL-23 was measured in the serum and forepaws were analyzed by standard histology.
Results. In the offspring from a (B10.RIII x B10)N2 intercross, there was no difference in arthritis development between ($Cia8^{r/r}.H\text{-}2^{r/r}$) and ($Cia8^{b/b}.H\text{-}2^{r/r}$) mice, whereas ($Cia8^{r/r}.H\text{-}2^{b/b}$) did not develop arthritis. Similarly, in (B10.RIII x B6) F2 mice, $H\text{-}2^{r/r}$ mice developed arthritis while $H\text{-}2^{b/b}$ mice were protected. There was no difference in arthritis development between $Cia8^{r/r}$ and $Cia8^{b/b}$ mice in the (B10.RIII x B6)F2 cohort.
Conclusions. The development of IL-23 induced murine spondyloarthritis is controlled by genomic background. Arthritis susceptibility in this model maps to *H-2* (MHC) on chromosome 17 and not *Cia8* on chromosome 10. The critical role of the MHC in IL-23 minicircle-induced arthritis is surprising, considering that γδ T cells are not MHC restricted. IL-23 minicircle-induced arthritis may serve as a model to interrogate the relationship between MHC and the IL-23/IL-17A axis.

O4

THE ASAS-OMERACT CORE DOMAIN SET FOR AXIAL SPONDYLOARTHIRTIS

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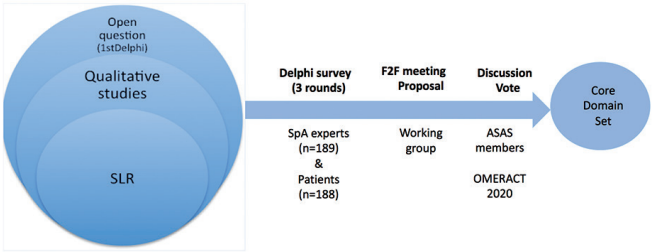
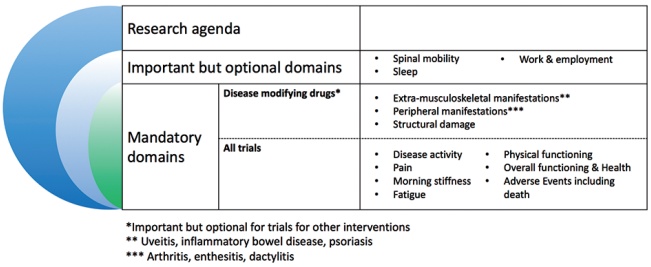
Background. The current core outcome set for ankylosing spondylitis exists for about 20 years with only very minor adaptations since then (1, 2). Due to all the advances occurred in this field during the last decades, an update of this core set is necessary.
Aim. To update the ASAS-OMERACT core outcome set for ankylosing spondylitis into the ASAS-OMERACT core outcome set for axial spondyloarthritis (axSpA).
Methods. Following OMERACT and COMET guidelines, an international working group representing key stakeholders (patients, rheumatologists, health professionals, pharmaceutical industry and drug regulatory agencies) defined the core domain set for axSpA. The development of this process consisted of: i) Identifying candidate domains using a systematic literature review and qualitative studies; ii) Selection of the most relevant domains for different stakeholders through a 3-round Delphi survey involving axSpA patients and axSpA experts; iii) Consensus and voting by ASAS; iv) Endorsement by OMERACT. Fig. 1.
Results. The updated core outcome set for axSpA includes 7 mandatory domains for all trials (disease activity, pain, morning stiffness, fatigue, physical function, overall functioning and health, and adverse events including death). There are 3 additional domains (extra-musculoskeletal manifestations, peripheral manifestations and structural damage) that are mandatory for disease modifying therapies and important but optional for symptom modifying therapies. Finally, 3 other domains (spinal mobility, sleep, and work and employment) are defined as important but optional domains for all trials. Fig. 2.
Conclusion. The ASAS-OMERACT core domain set for AS has been updated into the ASAS-OMERACT core domain set for axSpA. The next step is the selection of instruments for each domain.



O4. Fig. 1. Development process to determine the core domain set.



O4. Fig. 2. Update core domain set for axial spondyloarthritis presented according to the OMERACT onion.

Funding. The Assessment of Spondyloarthritis international Society (ASAS) funded Anne Boel and Victoria Navarro-Compán to work on the project to update the core outcome set.

Acknowledgements. We would like to thank all patients from the Spondylitis Association of America, Canadian Spondylitis Association and National Axial Spondyloarthritis Society for their participation in the Delphi survey. We would also like to thank all ASAS members as well as the representatives of the pharmaceutical companies and drug regulatory agencies for their participation in the project.

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O5

CO-MEDICATION WITH A csDMARD IS ASSOCIATED WITH IMPROVED OUTCOMES OF TNF INHIBITORS IN PATIENTS WITH AXIAL SPONDYLARTHRITIS: RESULTS FROM THE EuroSpA COLLABORATION

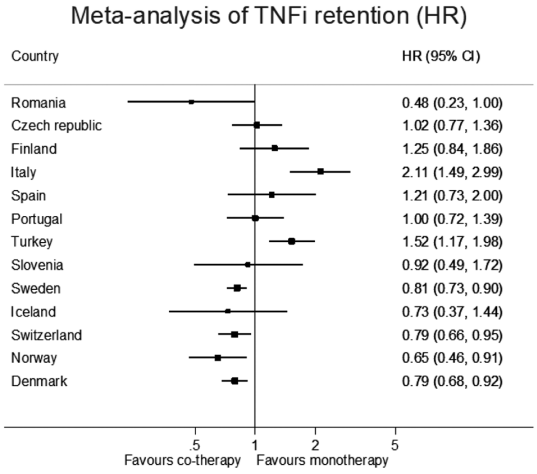
Nissen M.J., Delcoigne B., Di Giuseppe D., Jacobsson L., Askling J., Glintborg B., Lindström U.
EuroSpA Research Collaboration, on behalf of DANBIO, Denmark, ARTIS, Sweden, SCQM, Switzerland, NOR-DMARD, Norway, ATTRA, Czech Republic, Reuma.pt, Portugal, BIOBADASER, Spain, ROB-FIN, Finland, biorx.si, Slovenia, ICEBIO, Iceland, TURKBIO, Turkey, RRBR, Romania, ARC, The Netherland, BSRBR-AS, UK, GISEA, Italy

Introduction. Many axial spondylarthritis (axSpA) patients are prescribed a tumour necrosis factor inhibitor (TNFi) in combination with a conventional synthetic disease-modifying anti-rheumatic drug (csDMARD co-therapy), however the value of combination therapy remains unclear.
Aim. To describe patients with axSpA initiating their first TNFi as monotherapy compared to co-therapy with a csDMARD, and to compare one-year TNFi retention and clinical effectiveness.
Methods. Data was collected from 13 European axSpA registries. One-year outcomes were assessed as TNFi retention rates (Kaplan-Meier) and hazard ratios (HR) with 95% confidence intervals (95%CI) for TNFi discontinuation (Cox models), adjusted for age, sex, calendar year, disease duration, disease activity

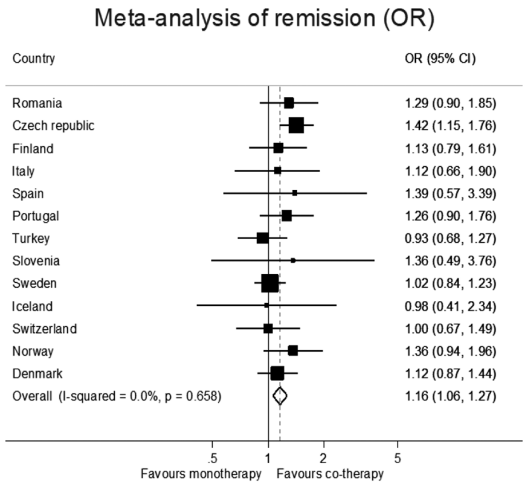
and stratified by drug type Similarly, logistic regression was performed to estimate odds ratios (OR) of achieving remission at one year (ASDAS<1.3 and/or BASDAI<2), adjusted as described above. Data were analysed per country and where appropriate, pooled across countries.

Results. 24171 axSpA patients initiating a TNFi were identified with 32% on csDMARD co-therapy (range across countries: 13.5% to 71.2%). The co-therapy group had significantly more peripheral joint disease and higher CRP, compared to monotherapy. One-year TNFi-retention rates were 79% (78%-79%) with TNFi monotherapy, compared to 82% (81%-83%) with co-therapy (p<0.001). TNFi retention varied across countries, with significant heterogeneity precluding a pooled estimate (Fig. 1). Remission was obtained in 22% on co-therapy and 20% on monotherapy (p<0.001) with an adjusted OR (95%CI) of 1.16 (1.07-1.25) (Fig. 2). Co-therapy with a csDMARD significantly improved effectiveness for both infliximab (1.21 (1.01-1.46)) and etanercept (1.28 (1.06-1.56)), but not adalimumab (1.08 (0.93-1.27)), in adjusted analyses.

Conclusions. One-year treatment outcomes were better in axSpA patients with csDMARD co-therapy compared to TNFi monotherapy, although the benefits were modest.



O5. Fig. 1. Forest plot of country-specific hazard ratios and 95% confidence intervals for TNF-inhibitor discontinuation comparing co-therapy with TNFi monotherapy, ordered by TNFi retention rate per country. Overall estimate not presented due to statistically significant heterogeneity (I^2=79.4%, p<0.001).



O5. Fig. 2. Forest plot of country-specific odds ratios and 95% confidence intervals for remission at one-year, comparing co-therapy with TNFi monotherapy, ordered by TNFi retention rate per country.

O6

PERIPHERAL MANIFESTATIONS ARE MAJOR DETERMINANTS OF DISEASE PHENOTYPE AND OUTCOME IN NEW ONSET SPONDYLOARTHRITIS: BASELINE AND TWO-YEAR FOLLOW-UP DATA FROM THE Be-GIANT COHORT

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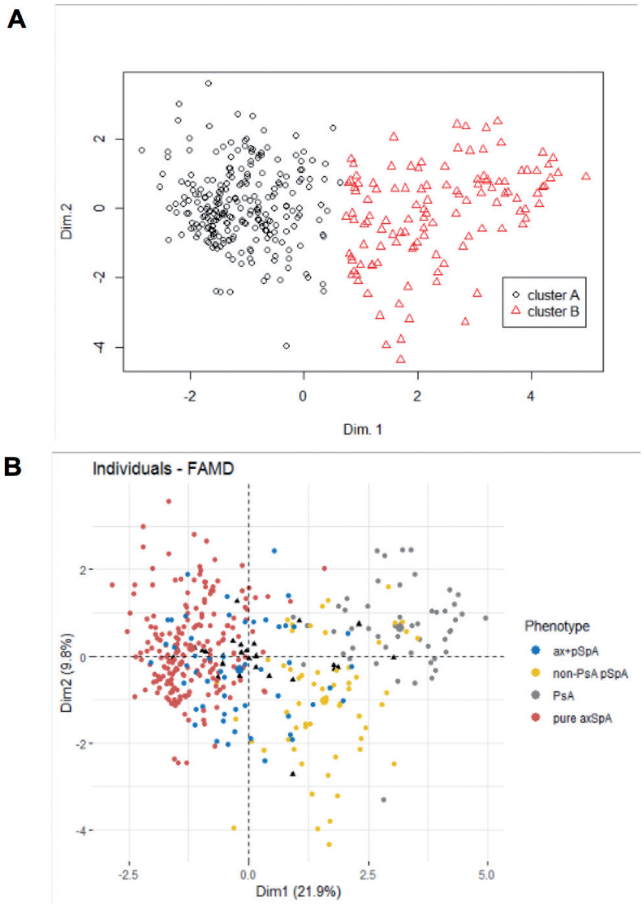
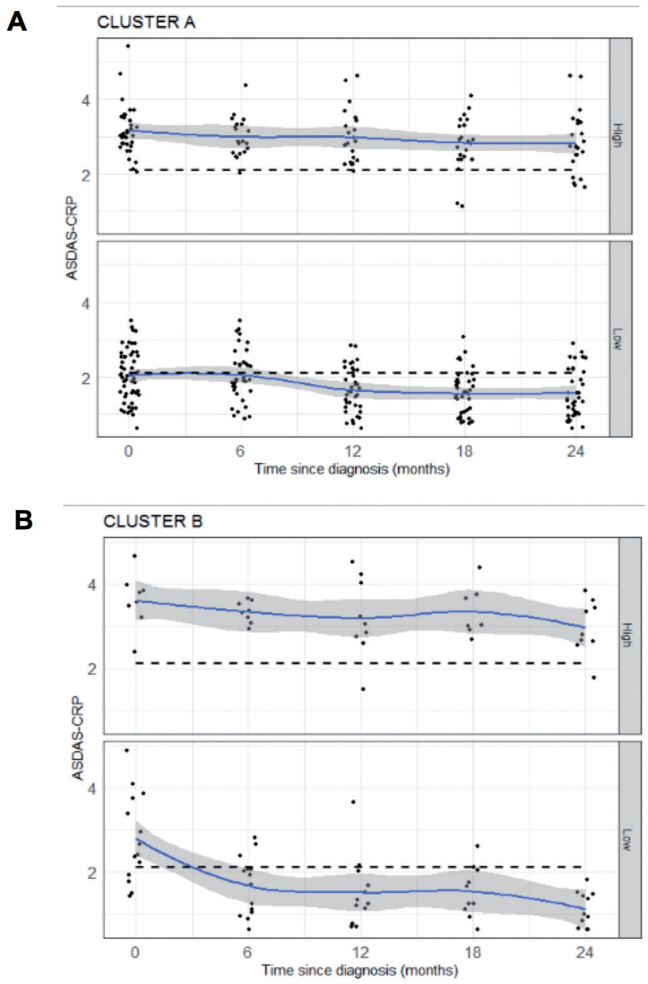
Introduction. Peripheral manifestations form an integral part of the spondyloarthritis (SpA) concept, yet their impact on disease phenotype and outcome is poorly understood. This study aimed to delineate their role in stratification and prognosis of new-onset SpA using a prospective observational nation-wide inception cohort, the Be-Giant (BelGian Inflammatory Arthritis and spoNdylitis cohorT).

Methods. Newly diagnosed adult SpA patients, fulfilling the Assessment of SpondyloArthritis international Society (ASAS) criteria for axial or peripheral SpA, were included in Be-Giant and prospectively followed every six months. Peripheral involvement was determined in relation to clinically similar patient subsets at baseline and ASDAS-CRP-based disease activity patterns during two years of follow-up, respectively identified through K-means cluster analysis and latent class growth analysis.

Results. Be-Giant included 367 patients from inception to March 2020. 162 (44%) presented with documented peripheral manifestations at or prior to the diagnosis. Two patient clusters (A, axial predominant [n=248] and B, peripheral predominant [n=119]) were identified at diagnosis (Fig. 1). Each cluster contained two trajectories of disease activity: one maintaining high disease activity ("high"), the other rapidly evolving to low disease activity ("low"), Fig. 2. Peripheral manifestations in cluster A predisposed to persistently high disease activity over time (OR for "high" trajectory 2.0, 95%CI 1.3-3.1, p=0.001) despite more intensified therapy with biologics (HR 2.1, 95%CI 1.0-4.4, p=0.04). Male sex predicted a favorable outcome in both clusters: OR for the "high" trajectory in cluster A 0.4, 95%CI 0.3-0.6 and in cluster B 0.3, 95%CI 0.2-0.7.



O6. Fig. 1. Cluster analysis - Each symbol/dot represents an individual patient in relation to the first and the second principal dimension; patients with a similar clinical profile are closer to each other. Panel A: colors correspond to different clusters: cluster A (black dots) and cluster B (red triangles); panel B: colors correspond to the individual's classification.



O6. Fig. 2. Distribution of the Ankylosing Spondylitis Disease Activity Score – C-reactive protein (ASDAS-CRP) over time across distinct trajectories of disease activity for patients in cluster A and cluster B. Mean trajectories are constructed with Loess regression (smoothed conditional mean), error bands represent 95% confidence intervals. A dashed reference line was added at y=2.1 for ASDAS-CRP.

Conclusions. Peripheral musculoskeletal manifestations commonly occur in new-onset SpA and are major determinants of phenotypical diversity at initial presentation. Intriguingly, stratification of axSpA according to concomitant peripheral involvement permits to identify an endotype with an unfavorable outcome. These observations justify an endotype-tailored approach beyond current ASAS/EULAR management recommendations.

Acknowledgements. We thank the Be-GIANT consortium for their contribution.

O7

FUNCTIONAL GENOMICS OF *RUNX3* REGULATORY SNPS ASSOCIATED WITH ANKYLOSING SPONDYLITIS

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Introduction. The robust genetic association ($p<10^{-15}$) of the Runt-related transcription factor (TF) locus (*RUNX3*) with ankylosing spondylitis (AS) is one of more than 100 such associations now recognized (1). Understanding the mechanism(s) behind the association with such a pleiotropic gene represents a formidable challenge. We previously demonstrated that the association between AS and the single nucleotide polymorphism (SNP) *rs4648889* located in a 2kb regulatory region upstream of the *RUNX3* promoter can be explained by allele-specific effects on TF recruitment that alter gene expression, specifically in CD8+ T-cells (2). We recently dissected the full complement of TFs affected by the AS-associated *rs4648889* allele to show that the nucleosome remodelling deacetylase (NuRD) complex and interferon regulatory factor (IRF) 5 bind differentially to this allele and have a crucial role in CD8+ T-cell function (3). However, the association with *RUNX3* is complex and probably includes interactions with other SNPs, including the lead SNP *rs6600247*, and requires further functional analysis.
Aim. The purpose of this work is to define the functional effect of *rs6622047* in CD8+ T-cells and monocytes. In specific, we expect to define the impact of AS-associated allele to TF binding and to evaluate chromosome looping between *rs6600247* and the *RUNX3* promoter.
Methods. The epigenetic landscape of SNP *rs6600247* was defined using Roadmap database. *In vitro* functional studies were performed to characterize the effects of this SNP on TFs binding. Chromosome conformation capture (3C) provided critical functional evidence for looping among AS-associated SNPs and the *RUNX3* promoter.
Results. (1) *In silico* data revealed a c-MYC ChIP-seq peak in GM12878 lymphoblastoid cells overlapping *rs6600247*; (2) Mobility shift assays (EMSAs) and WB-EMSAs showed reduced DNA/protein binding in the presence of the AS-risk allele in CD14+ monocytes. C-MYC binding-site is disrupted and binding abolished in the presence of the AS-risk allele; (3) 3C experiments indicate low interaction frequency between SNP *rs6600247* and RUNX3 promoter: a consistent interaction frequency was observed between the distal promoter and the region encompassing the AS-associated SNP *rs4648889* and a RUNX3 intronic region.
Conclusions. The enhancer upstream the *RUNX3* gene has a plausible functional role in AS, probably by regulating gene transcription and DNA looping. These observations are critically important in defining RUNX3 role in AS, RUNX3-related affected pathways and potential therapeutic drug targets.

References

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2. VECELLIO M *et al*.: *Ann Rheum Dis* 2016 Aug;75(8):1534-40.
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O8

TH_{17} EXPANSION IS PARTIALLY INHIBITED BY IL-23, WHERE POLYFUNCTIONAL TH_{17}-DERIVED CELLS ARE AMPLIFIED BY CELLULAR STRESS IN PSORIATIC ARTHRITIS

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Introduction. Genetic studies have highlighted the importance of the IL-23 pathway in psoriatic arthritis (PsA), and the clinical importance of the IL-23/Th17 pathway has been validated by the efficacy of antibodies targeting IL-23. However, recent trials in spondyloarthritis have revealed inefficacy of IL-23 inhibition in axial disease. In this study, we explore the effect of IL-23 inhibition on Th_{17} differentiation in PsA. Furthermore, we evaluate the augmentation of polyfunctional Th_{17}-derived cells by metabolic stress.-
Methods. Psoriatic arthritis patient synovial fluid (SF) or peripheral blood (PB) Th_1, Th_{17}, or Th_{17}-derived cell frequencies were interrogated by flow cytometry using CCR6, CD161 and T-bet as phenotypic markers, and the cytokines IFN-γ, GM-CSF and IL-17 were assessed by flow cytometry and ELISA. The role of IL-23, TGF-β and the metabolic mediators on polyfunctional T cell differentiation and expansion was investigated.
Results. Polyfunctional Th_{17}-derived CD4 T cells were increased in PsA patient SF, with a relative decrease in patient PB. IL-17 release by effector T cells was increased by 56.9±13.5% with exogenous IL-23, where the removal of IL-23 during Th_{17} differentiation reduced IL-17 release by 30.5±5.8% and IL-17+ cells by 30.6±8.2%. In contrast, GM-CSF+ cells were augmented by 98.9±16.8% without IL-23, where there was also a relative increase in polyfunctional GM-CSF+ subsets. The effects of 3 metabolic mediators was explored, where exogenous sodium chloride and thapsigargin significantly expanded polyfunctional Th_{17}-derived cells, but had no effect on Th_1 cells.
Conclusions. We confirmed the abundance of polyfunctional GM-CSF+ Th_{17}-derived cells in PsA inflamed joints. IL-23 augmented IL-17 but decreased GM-CSF, which may partly account for therapeutic differences in IL-17 and IL-23 inhibition. Polyfunctional Th_{17}-derived cells were expanded by cellular stress, which is the first demonstration of this mechanism in PsA, and may represent a unique therapeutic target.

O9

GUT-JOINT MIGRATORY T CELLS ARE CYTOKINE COMPETENT AND CONTRIBUTE TO INFLAMMATION IN THE JOINT

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Background. Although studies have shown gut-associated cells in the enthesis of joints affected by spondyloarthritis, a direct link through cellular transit between the gut and joint has not been formally demonstrated. Using KikGR transgenic mice to label in situ and track cellular trafficking from the distal colon to the joint, we aimed to determine the roles of gut-trafficked T cells in the joint.
Methods. KikGR x TNF$^{DARE/+}$ mice, which spontaneously develop Crohn's-like intestinal inflammation and spondyloarthritis-like joint inflammation, and KikGR x TNF$^{+/+}$ controls underwent colonoscopy-guided photo-labeling of the distal colon epithelium. At 72 hours T cells were magnetically isolated from the popliteal lymph nodes (PLNs). T cells were stimulated with anti-CD3 anti-CD28 for 4 hours with Golgi-stop-plug and were evaluated by flow cytometry for cytokine production. To assess the contribution of gut-derived T cells to disease, we reconstituted Rag1$^{-/-}$ mice with magnetically isolated colon epithelium associated T cells from TNF$^{DARE/+}$ and TNF$^{+/+}$ donors. After 8 weeks of homeostatic proliferation, we assessed joint inflammation by histology 5 days following injection of complete Freund's adjuvant (CFA) into the left hind hock.
Results. Ex vivo stimulation of T cells demonstrated significant enrichment of TNF and IL-17A production in the photo-labeled gut-derived T cells. As expected, gut-derived T cells derived from TNF$^{DARE/+}$ animals produced higher levels of TNF compared to littermate controls (45% vs 5%, p=0.1); however, a large proportion of gut-derived cells in WT animals produced IL-17A (41% vs 1%, p<0.001). Transfer of gut-derived T cells into Rag1$^{-/-}$ mice resulted in moderately increased inflammation in recipients of TNF$^{+/+}$ T cells (p=0.056), and a significant increase in inflammation in recipients of TNF$^{DARE/+}$ cells (p=0.01), compared to unmanipulated Rag1$^{-/-}$ mice, following CFA injection.
Conclusions. Our data demonstrate a direct link between the gut and joint through trafficking of gut-derived T cells with pathogenic potential through production of pro-inflammatory cytokines like IL-17 and TNF and exacerbation of joint inflammation.

O10

TOWARDS DEVELOPMENT OF AN ULTRASOUND ENTHESITIS SCORE IN PSORIATIC ARTHRITIS: 24-WEEK RESULTS FROM THE ULTIMATE STUDY

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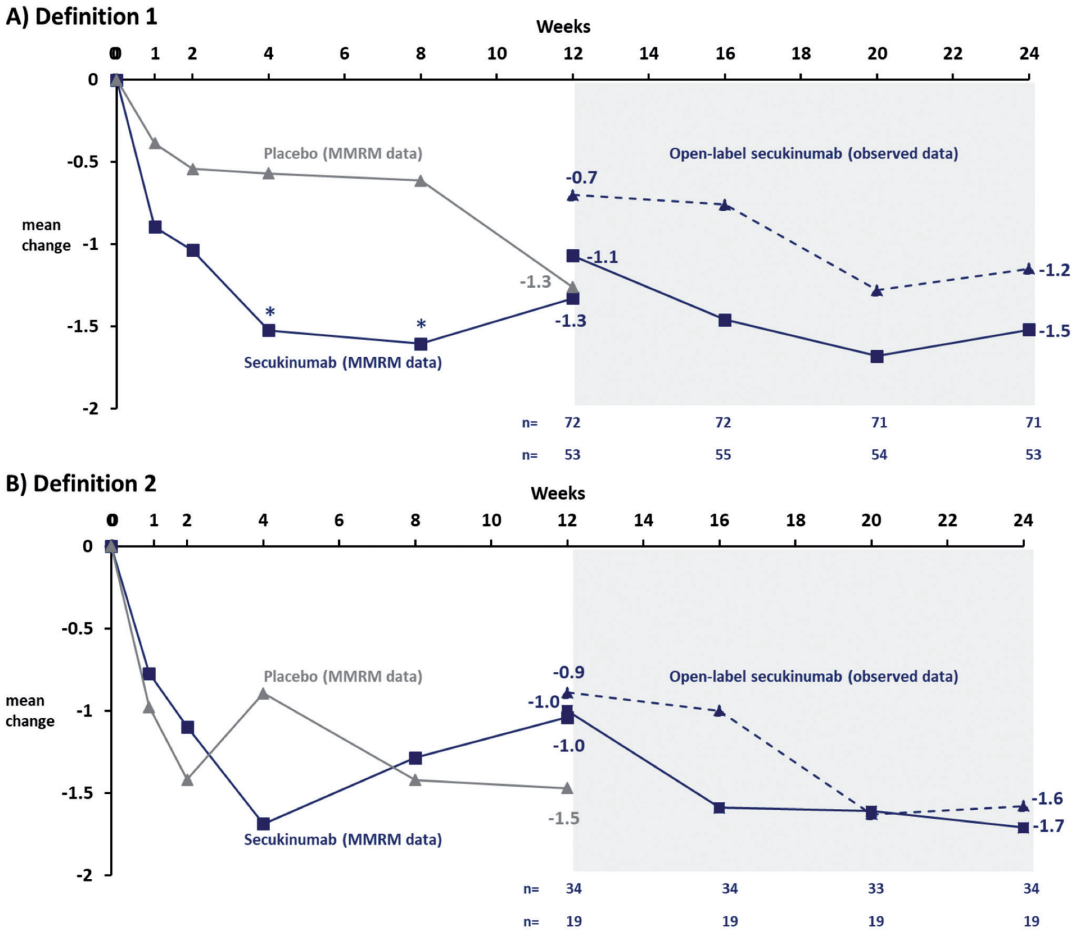
Introduction. Ultrasound is a sensitive tool for detecting synovitis and enthesitis in psoriatic arthritis (PsA). Rapid and significant benefit of secukinumab vs. placebo on ultrasound detected synovitis was demonstrated in the first phase-IIIb imaging randomized controlled study (ULTIMATE, NCT02662985) in PsA.



O10. Fig. 1. Global OMERACT-Ultrasound enthesitis score change from baseline to Week 12 and from Week 12 to 24.

*P < 0.05. **Definition 1:** MMRM difference (SE) at Week 12: -0.1 (0.5); 95% CI: (-1.0, 0.8); P=0.44. Within treatment group from Week 12 to 24: NS for both initial secukinumab and placebo-secukinumab groups. Between treatment groups from baseline to Week 24: -0.4; 95% CI: (-1.5, 0.7); P=0.50; NS.
Definition 2: MMRM difference (SE) at Week 12: 0.4 (0.7); 95% CI: (-0.9, 1.8); P=0.26. Within treatment group from Week 12 to 24: -0.7; 95% CI: (-1.3, -0.2); P=0.02 for initial secukinumab group and NS for placebo-secukinumab group. Between treatment groups from baseline to Week 24: -0.1; 95% CI: (-1.5, 1.2); P=0.85; NS.
n, number of evaluable patients; NS, non-significant

Here, we report enthesitis response to secukinumab over 24-weeks using two novel ultrasound composite enthesitis scores.
Methods. Study design was previously reported. Inclusion criteria required ≥1 clinical enthesitis as per SPARCC enthesitis index, but not ultrasound-assessed enthesitis. Throughout the study, enthesitis was assessed with SPARCC and ultrasound across six sites. Two exploratory global OMERACT-ultrasound enthesitis scores were tested: Definition-1 combining Power Doppler (PD; 0–3) and Grey Scale (0–1) inflammation and Definition-2 rating PD only (0–3) across six sites.
Results. Of 166 patients enrolled, 93% completed 24 weeks of treatment. Mean clinical enthesitis count at baseline was 4. Higher proportion of patients met Global OMERACT-ultrasound enthesitis score with Definition-1 vs. Definition-2 (81% vs. 33%) at baseline. Mean reduction from baseline to Week 24 in enthesitis (SPARCC) was 3 each for secukinumab and placebo-secukinumab groups. Resolution of enthesitis (SPARCC) was 46% for secukinumab and 54% for placebo-secukinumab groups at Week 24. Comparable decrease in OMERACT-ultrasound enthesitis (Definition-1, 2) score was observed from baseline to Week 24 for secukinumab and placebo-secukinumab groups (Fig. 1).
Conclusions. Consistent clinical and ultrasound responses on enthesitis were shown through 24-weeks across secukinumab and placebo-secukinumab groups.

O11

INTERLEUKIN-23 INHIBITORS AND THEIR APPARENT INEFFECTIVENESS IN TREATING AXIAL SPONDYLOARTHRITIS: A SYSTEMATIC REVIEW WITH META-ANALYSIS

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Introduction and Aim. The interleukin-23 – interleukin-17 axis is proposed as a critical immune-activator in the pathophysiology of axial spondyloarthritis. Emerging clinical trial data from interleukin-23 inhibitors fail to meet key efficacy endpoints. We set up a systematic review with meta-analysis contrasting interleukin-23 to interleukin-17A therapies in axial spondyloarthritis and related spondyloarthritis-phenotypes.
Methods. We searched databases Clinicaltrials.gov, Pubmed and Embase. Randomized controlled trials addressing interventions with interleukin-23 or interleu kin-17A inhibitors in axial spondyloarthritis or psoriatic arthritis were eligible. ASAS40 was chosen as primary outcome measure. ASAS20 and ASDAS-CRP, BASDAI, hS-CRP, SPARCC change from baseline (spine and SI joints) were chosen as secondary outcome measures. Effect estimates were reported as odds ratios or mean differences, with corresponding confidence intervals.
Results. 1693 records were identified, 18 randomized controlled trials were incorporated for meta-analysis. For axial spondyloarthritis, no interleukin-23 inhibitor met ASAS 40 endpoints (OR 1.51 [CI 0.98, 2.31]). All interleukin-17A inhibitors, however, did (OR 2.89 [CI 2.02, 4.13]). For risankizumab, ASDAS-CRP (MD -0.30 [CI -0.41, -0.19]), hS-CRP (MD -2.10 [CI -2.56, -1.64]), and SPARCC spine (MD -3.1 [CI -4.50, -1.70]) reductions were statistically significant. Axial outcomes were inconsistently reported for other spondyloarthritis-phenotypes, hence no comparisons could be drawn.
Conclusion. This systematic review summarizes IL-23 and IL-17A inhibitor interventions targeting axial spondyloarthritis. Regarding the observed ineffectiveness for interleukin-23 inhibitors on ASAS40 and ASAS20 key composite outcome measures, this systematic review confirms superior efficacy for treatment with interleukin-17A inhibitors. Interestingly, we observed a pooled statistically significant reduction in disease activity, inflammatory markers, and structural damage (as reported by ASDAS-CRP, hS-CRP and SPARCC) after treatment initiation with risankizumab. These data could suggest disease-modifying properties for interleukin-23p19 targeting, despite the observed ineffectiveness on composite efficacy outcomes.

O12

A FIRST IN DISEASE PHASE 2A TRIAL OF GRANULOCYTE MONOCYTE COLONY STIMULATING FACTOR NEUTRALISATION FOR AXIAL SPONDYLOARTHRITIS (NAMASTE STUDY)

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*Equal contribution

Introduction. Granulocyte monocyte colony stimulating factor (GM-CSF) is a proinflammatory cytokine overproduced in a number of inflammatory and autoimmune diseases. In AxSpA we have demonstrated enhanced GM-CSF production by lymphoid cells including T cells, NK cells and Innate lymphocytes within inflamed joints. Therefore there is a rationale for the GM-CSF neutralisation as novel therapy for the treatment axSpA.
Methods. We report a phase 2a investigator initiated, proof-of-concept, Bayesian randomised, double-blind, placebo-controlled study to evaluate the safety/tolerability and efficacy of GM-CSF neutralisation with namilumab in 42 subjects with moderate-to-severely active axSpA (NAMASTE study, ClinicalTrials.gov NCT03622658). Namilumab is a human IgG1 monoclonal anti-GM-CSF antibody. Patients with previous inadequate response/intolerance to anti-TNF therapy were included. The primary endpoint was percentage of patients achieving ASAS20 response. Secondary and exploratory endpoints were also assessed including ASDAS score and ASAS40.
Results and Conclusions. Four sc injections of namilumab 150 mg given over 10 weeks were broadly safe and well tolerated. This study failed to meet its primary endpoint (ASAS20 at 12 weeks versus placebo). However, namilumab treatment improved ASDAS-CRP score at week 6 versus placebo (secondary endpoint), raising the question of a potential benefit in a subgroup of patients.

Acknowledgements. The study received funding from Izana Bioscience. The study received support from the National Institute for Health Research (NIHR) Oxford Biomedical Research Centre (BRC) (PT and PB). The views expressed are those of the author(s) and not necessarily those of the NHS, the NIHR or the Department of Health.

O13

METABOLOMICS PROFILING OF SERUM FOR BIOMARKER DISCOVERY TO IDENTIFY PSORIATIC ARTHRITIS AND ANKYLOSING SPONDYLITIS

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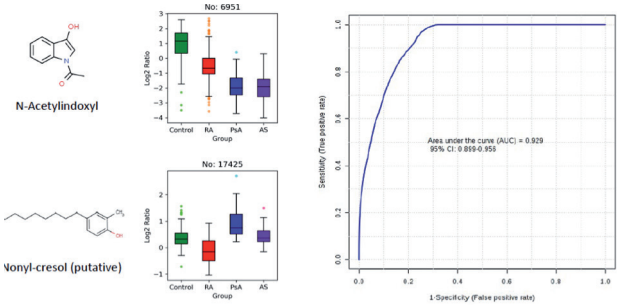
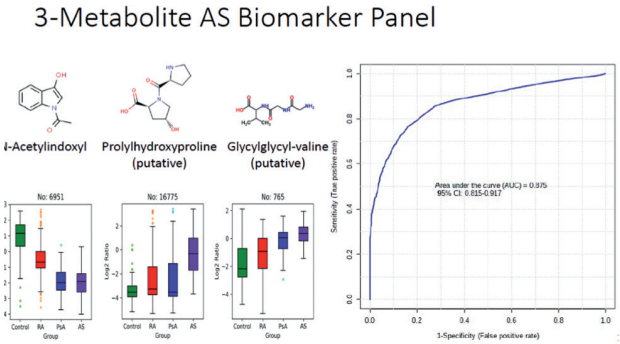
Aim. We aimed to apply high-performance chemical isotope labeling (CIL) LC-MS platform to identify biomarker candidates of PsA and AS in human serum.
Methods. Serum samples were collected from 331 subjects, including 100 healthy controls, 48 PsA, 52 AS, and 131 RA patients. Each sample was incubated with ^{12}C-dansyl chloride, which labels the amine/phenol-containing metabolites. The reference sample for relative quantification was prepared by mixing individual samples and then labeled by ^{13}C-dansyl chloride. With this normalization, the individual samples and the reference sample were mixed in an equal amount. Finally, we used an LC-QTOF-MS platform to analyze the mixtures and measure the ^{12}C/^{13}C peak pairs.
Results. We first visualized the entire amine/phenol-submetabolome for all phenotypes using the partial least squares discriminant analysis (PLS-DA). PsA and AS samples were closely clustering, while the RA and control groups were well separated. We first differentiated PsA patients from controls/RA patients and then filtered out the AS patients wrongly classified as PsA. The same strategy was conducted for AS. Stipulating a fold change >1.5 with the false discovery rate <5%, we found 74 metabolites distinguishing the PsA group from the control or RA group. We selected significant metabolites to build a classification model based on the linear support vector machine (SVM) method, and the area-under-the-curve (AUC) value of the resulting receiver operating characteristic (ROC) curve was 0.929 (95% confidence interval: 0.899-0.956) (Fig. 1). Similarly, 37 metabolites could differentiate AS samples from RAs and controls (Fig. 2). A

proposed diagnostic panel containing four metabolites demonstrated an AUC value of 0.890 (0.843-0.934). For the last step there were 24 metabolites that distinguished PsA and AS. The biomarker panel consisting of the top three metabolites achieved AUC = 0.827 (0.717-0.919).

Conclusions. Isotope-labeling-LC-MS-based metabolomics has revealed biomarker candidates that can specifically differentiate PsA or AS patients from control populations.



O13. Fig. 1.



O13. Fig. 2.

O14

DENDRITIC CELLS INFLUENCE T CELL FATE AND PATHOGENICITY IN HLA-B27 TRANSGENIC RAT MODEL OF SPONDYLOARTHRITIS (SpA)

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Introduction. Spondylarthritis (SpA) is a group of chronic inflammatory disorders with axial and peripheral symptoms. A strong association of SpA with the human leukocyte antigen (HLA) class I molecule B27 has been known for 45 years but the pathogenic role of HLA-B27 remains largely unexplained. Transgenic rats expressing HLA-B27 and human β2-microglobulin (B27-rat) develop clinical manifestations resembling human disease. Previous studies revealed the fundamental role of gut microbiota, antigen-presenting cells (APCs) and $CD4^+$ T cells for the development of SpA in this model. Among APCs, conventional dendritic cells (cDCs) can be divided in two different subsets: cDC1 and cDC2. Whereas most cDC1 express the chemokine receptor XCR1 and are involved in immune tolerance, cDC2 promote adaptive immune responses.

Aim. In this study, we first aimed to determine how cDC subsets respond to changes in their microenvironment. Then, we determined the role of each subset in the induction of pathogenic $CD4^+$ T cells.

Methods. Purified cDC subsets were isolated from non-transgenic (NTG) and B27-rats, stimulated and cultured for 6 days with naïve $CD4^+$ T cells from NTG rats in the presence of anti-TCRab antibody.

Results. First, we show that splenic cDC2 from B27-rats are strong inducers of pathogenic Th17 cells, as compared to those from NTG littermates. Second, $XCR1^+$ cDC1 from NTG rats sustain T cell proliferation and regulatory T cells (Treg) development, whereas such induction is abrogated using $XCR1^+$ cDC1 cells from B27-rat.

Conclusion. Our study demonstrates that B27 expression in cDCs is responsible for altered function that may contribute to SpA development by favoring pathogenic Th17 cells and impairing Treg differentiation. Further studies will focus on the molecular mechanisms underlying those alterations.

O15

FACTORS ASSOCIATED WITH SWITCHING FROM ONE TNFi AGENT TO ANOTHER TNFi, OR IL-17i AGENT IN PATIENTS WITH ANKYLOSING SPONDYLITIS

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Aim. To examine factors associated with switching from one TNFi agent to either another TNFi, IL-17i or JAKi over time (<2years and >2 years) in a longitudinal cohort of ankylosing spondylitis (AS) patients.

Methods. Data were analyzed from AS patients in the Prospective Study of Outcomes in Ankylosing Spondylitis (PSOAS) cohort. Data collected included age, gender, ethnicity, HLA-B27 status, disease activity (BASDAI or ASDAS), erythocyte sedimentation rate (ESR), C-reactive protein (CRP), disease severity (functional (BASFI) or radiographic (mSASSS)), comorbidities, smoking, exercise, disease duration, depression, and other medication usage (NSAIDs, including the NSAID index, nonbiologic DMARDs, opioids, anti-depressants, anxiolytics and hypnotics). Logistic regression models were built to identify clinical and sociodemographic characteristics associated with medication switching to another TNFi, IL-17i, or other biologic therapy within 2 years and after 2 years of initiation.

Results. Of those patients in PSOAS who had at least two years of follow-up, 496 were prescribed TNFi, 34 IL-17i and 3 JAKi agents. According to the multinomial logistic regression analysis, patients who switched from their original TNFi to another TNFi, IL-17i or JAKi within two years after initiating their original TNFi were more likely to be older, have higher baseline subjective disease activity (BASDAI), less radiographic severity by mSASSS, have higher CRP, exercise > 120 minutes/week and less likely to be currently smoking. Patients who switched after two years were less likely to be depressed, had shorter disease duration, had greater subjective disease activity, were more likely to be exercising > 120 minutes/week, and had more comorbidities.

Conclusions. Different factors were encountered in AS patients who switched from their initial TNFi to another TNFi, IL-17i or JAKi within 2 years versus after 2 years of treatment.

O16

CORRESPONDENCE BETWEEN PATIENT-REPORTED FLARE AND DISEASE ACTIVITY SCORE VARIATION IN AXIAL SPONDYLOARTHRITIS

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Introduction. There is currently no consensual definition of flare in axial spondyloarthritis (axSpA). The aims of this study were to determine thresholds of variations of BASDAI associated with patient-reported flare and to test performance of ASAS preliminary definitions of flare.

Methods. This prospective study was proposed to all patients registered on the Spondy+ platform, a secure e-health platform for SpA patients. Every week during one year, patients were invited to connect to the platform to fill a BASDAI questionnaire, a 0-10 pain visual analogic scale and to answer to the following question: "has your disease flared up since last week?". Variations of BASDAI and pain between connections were assessed and associated to the change of perception of flare. ROC curves were built to assess performances of BASDAI and VAS to identify patient-reported occurrence and resolution of flare. Performance of ASAS preliminary definitions of flare was also assessed.

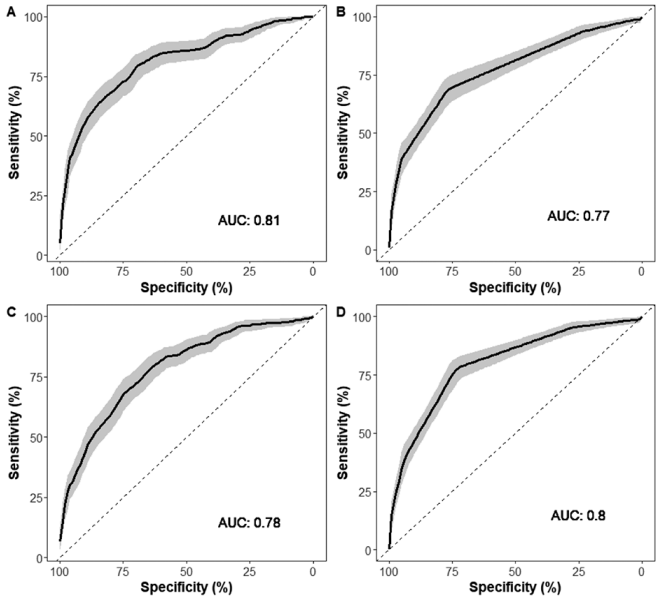
Results. 99 patients participated in this study for an average duration of 309 ± 148 days. 92% of them reported at least one episode of flare over follow-up. Area under the ROC curve (AUC) was significantly higher for ΔBASDAI than for Δpain, to predict outbreak of flare (0.81 vs 0.77, p=0.02). In contrast, ΔBASDAI and Δpain were comparably accurate to predict flare resolution with no significant difference of AUC (0.78 vs 0.80, p=0.4). Best performance was obtained for an increase of 0.2 points of BASDAI (sensitivity=70%; specificity=79%) and 0.5 of pain VAS to predict outbreak of flare and a decrease of 0.4 points of BASDAI and 0.5 of pain VAS to pre-

O15 - Table I. Factors associated with switching from one TNFi to a second TNFi or IL-17i or JAKi before or after two years based on multinomial logistic regression model (n=496 patients).

Variable	Switched within 2 years vs. not switched	*p*-value*	Switched after 2 years vs. not switched	*p*-value*
Gender (Male vs. Female)	0.99 (0.637, 1.549)	0.98	0.95 (0.528, 1.719)	0.87
HLA-B27 (+ vs. -)	0.99 (0.639, 1.523)	0.95	0.66 (0.365, 1.192)	0.17
Depression (CESD≥ 16 or self-report) (Yes vs. No)	0.99 (0.676, 1.445)	0.95	0.35 (0.182, 0.672)	0.002
Disease duration at baseline (≥20 vs. <20 years)	0.72 (0.485, 1.062)	0.10	0.27 (0.146, 0.491)	<0.001
Age at baseline (≥40 vs. <40) (years)	2.00 (1.291, 3.101)	0.002	1.23 (0.693, 2.193)	0.48
CRP (≥0.8 vs. <0.8)	1.94 (1.230, 3.056)	0.004	0.90 (0.454, 1.789)	0.77
BASFI (≥40 vs. <40)	1.34 (0.852, 2.118)	0.20	0.87 (0.450, 1.688)	0.68
BASDAI (≥4 vs. <4)	1.73 (1.064, 2.797)	0.03	2.31 (1.202, 4.427)	0.01
NSAID index (≥50 vs. <50)	1.32 (0.822, 2.128)	0.25	0.83 (0.437, 1.586)	0.58
NSAIDs used (Yes vs. No)	0.84 (0.534, 1.309)	0.43	0.85 (0.479, 1.510)	0.58
Exercise (≥120 vs. <120) (minutes/week)	1.95 (1.396, 2.731)	<0.001	1.66 (1.057, 2.613)	0.03
ASDAS (≥3 vs. <3)	0.78 (0.454, 1.356)	0.39	1.07 (0.478, 2.399)	0.87
Number of comorbidities (≥2 vs. <2)	1.40 (0.997, 1.951)	0.05	1.63 (1.029, 2.575)	0.04
mSASSS (≥4, vs. <4)	0.63 (0.421, 0.957)	0.03	0.81 (0.474, 1.392)	0.03
Current smoker (Yes vs No)	0.69 (0.385, 1.225)	<0.001	0.79 (0.297, 2.076)	0.20

*p-values calculated based on multinomial logistic regression model when switching is defined as being prescribed a second TNFi or taking IL-17i or JAKi before or after 2 years from first TNFi initiation.

dict flare resolution (Fig. 1). None of the ASAS definitions yielded sensitivity values higher than 37% whereas specificity was higher than 95% for all of them (Table I).
Conclusions. ΔBASDAI appeared as a suitable variable to monitor both occurrence and resolution of SpA flare, as reported by patient.



O16. Fig. 1. ROC Curves of ΔBASDAI (panels A,C) and Δpain (panels B,D) as a predictor of start (panels A,B) or resolution (panels C,D) of flare

O16. Table I. Performances of ASAS proposals to identify axial SpA flare.

Instrument	Flare definition	Se (95%CI)	Sp (95%CI)
Pain (0-10)	Δpain ≥2 AND final pain ≥4	37 (31-43)	96 (95-97)
	Δpain ≥3	20 (15-25)	99 (98-99)
	If pain value is ≥4: Δpain ≥2, otherwise: Δpain ≥3	37 (31-43)	96 (95-97)
BASDAI (0-10)	ΔBASDAI ≥2	18 (13-23)	99 (99-100)
	ΔBASDAI ≥2 AND final BASDAI ≥4	16 (12-21)	99 (99-100)
	ΔBASDAI ≥3	8 (5-11)	99 (99-100)
	ΔBASDAI ≥3 AND final BASDAI ≥4	7 (4-11)	100 (99-100)
	If observed BASDAI is ≥4: ΔBASDAI ≥2, otherwise: ΔBASDAI ≥3	17 (13-22)	99 (99-100)

Se: sensitivity; Sp: specificity; CI95%: 95% confidence interval; BASDAI: Bath Ankylosing Spondylitis disease activity index.

O17

CHOP DEFICIENCY DOES NOT PREVENT GUT INFLAMMATION IN EXPERIMENTAL SPONDYLOARTHRITIS

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Introduction. HLA-B27 can misfold and activate the unfolded protein response (UPR). The UPR may promote Th17-mediated inflammation and spondyloarthritis by upregulating *Ddit3* (encodes CHOP) when the PERK arm of the UPR is activated. CHOP is required for excess IL-23 production during UPR-TLR coactivation. Here, we examined whether CHOP deficiency in HLA-B27/human b_2m-transgenic (B27+) rats affects IL-23 production and gut inflammation.
Materials and Methods. CHOP-deficient (CHOP-) rats were generated by CRISPR/Cas9 editing of *Ddit3*, and crossed with B27+ animals to create B27+/CHOP- rats and were compared with B27+/CHOP+, B27-/CHOP- and B27-/CHOP+ controls. CHOP expression was evaluated by western blot and immunofluorescence. *Il23a* expression was measured upon UPR activation with thapsigargin or IFNγ in combination with LPS. Gut inflammation was assessed in colon samples of 6-7-month-old animals by histology and RNA-seq analysis.
Results. CHOP was not detectable in CHOP- macrophages at baseline or upon UPR activation. Subsequently, no CHOP mediated *Il23a* upregulation was detectable upon UPR activation in CHOP- cells. Histological scores of colon tissue were slightly increased in B27+CHOP- *vs*. B27+CHOP+, indicating that CHOP is not required for gut inflammation. No gut inflammation was observed in B27- controls independent of CHOP expression, and B27-/CHOP- animals showed significantly reduced histology scores compared to B27-/CHOP+ rats. Normalizing B27+ histology scores to their respective B27- controls, revealed a significant higher ratio in the B27+/CHOP- vs. B27+/CHOP+ rats, indicating that HLA-B27-induced gut inflammation is worse in the absence of CHOP. Analysis of whole tissue and tissue-derived inflammatory cells revealed the expected decrease in *Il23a* expression in the absence of CHOP, but no difference in *Il17a* expression, suggesting IL-23 is not the main driver of *Il17a* and gut inflammation. Pro-inflammatory cytokines like *Il1a*, *Tnf*, and *Ifn*γ were significantly elevated in B27+/CHOP- tissue *vs*. B27+/CHOP+.
Conclusion. Our data demonstrate that CHOP deficiency does not prevent gut inflammation in HLA-B27 transgenic rats, suggesting that CHOP may play a protective role in HLA-B27 associated gut disease.

O18

NOVEL USE OF SPECIFIC DRUGS ATTENUATES THE PRO-INFLAMMATORY CYTOKINES IL-17A AND IFN-GAMMA

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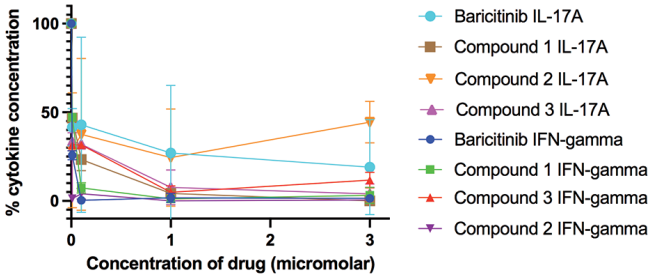
Introduction. Patients with ankylosing spondylitis (AS) have clinically unmet needs, partly due to the restricted therapeutic options. Work to increase the number of treatments proposes an exciting challenge, where novel approaches may prove fruitful.
Methods. We used an artificial intelligence-based algorithm to screen the literature and then assess compounds using a bespoke scoring system. This identified compounds that may work in reducing the concentration of pro-inflammatory cytokines linked to AS pathophysiology. Compounds were then tested on patient and healthy control (HC) PBMC samples, at a range of concentrations from 0.1 to 3 micromolar(s). Supernatants were obtained and ELISAs performed. We then generated IC50 values via GraphPad Prism. We used baricitinib as our positive drug control.
Results. Over 30 compounds were tested. At least 3 were found to reduce the concentration of IL-17A and/or IFN-gamma by 50% compared to cells suspended in DMSO. When variable doses were used, 3 promising compounds had IC50 values below or similar to baricitinib, as demonstrated in Table I and Fig. 1. Findings were similar for AS patients and HCs.
Conclusions. The results suggest there are 3 highly effective compounds that can reduce IL-17A and/or IFN-gamma comparably to baricitinib. Two demonstrate better activity at reducing IL-17A than baricitinib and compound 2 looks very promising for its action on IL-17A and IFN-gamma. Some of the compounds are readily available, promoting an efficient way to translate these into the AS therapeutic armoury.



O18. Fig. 1. The most promising compounds that inhibited IL-17A and/or IFN-gamma to levels seen with baricitinib.

O19

NEUTROPHIL-DERIVED MIF IS A CRITICAL DRIVER AND POTENTIAL THERAPEUTIC TARGET IN SPONDYLOARTHRITIS

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Introduction. To identify the origin and role of MIF and test the potential of MIF-targeted therapies in spondyloarthritis (SpA).
Methods. Curdlan (β-glucan)-treated, MIF-overexpressed, and MIF knockout (KO) SKG mice were used. Flow cytometry, ELISA, qPCR, immunoblotting, and histopathology were performed for immunological assessments. MIF antagonist (MIF098) was used to block the function of MIF *in vivo*. Anti-Gr-1 monoclonal antibody (mAb) was used to block the function of MIF-producing neutrophils *in vivo*. A total-RNA sequence was performed to profile transcriptomes in MIFKO neutrophils. Adoptive neutrophil transplantation was performed in MIFKO mice. T cell suppression and differentiation assays with or without MIF stimulation were performed in both mouse and human samples.
Results. The expression of MIF and its receptor CD74 were increased in various tissues of curdlan-treated SKG mice. MIF-overexpressed SKG mice remarkably induced key SpA clinical features, while MIFKO SKG mice or MIF098 treatment dramatically suppressed or attenuated these manifestations, with decreased type 3 immunity. We have also identified neutrophils that substantially expand and produce MIF in the inflamed joint. Adoptive neutrophil transplantation into MIFKO mice induced SpA features and blocking the function of neutrophils with anti-Gr1 mAb suppressed the phenotype. A total RNA-seq revealed potential mediators that down-regulate type 3 immunity in MIFKO neutrophils. Finally, we observed that MIF boosts both human and mouse Treg acquisition of a Th17 cell-like phenotype.
Conclusion. Our data suggest that MIF-secreting neutrophils are crucial drivers of type 3 immunity and potential new therapeutic targets in SpA.

Acknowledgements. This study is supported by CIHR, Arthritis Society, SPARTAN, and SPARCC. AN and NH have filed the US provisional patent application (No. 63/106,859; Date: 10/28/2020) in respect of MIF as a novel therapeutic target in SpA.

		IC50 Value for Drug (micromolar)										
		Baricitinib	Compound 1	Compound 2	Compound 3	Compound 4	Compound 5	Compound 6	Compound 7	Compound 8	Compound 9	Compound 10
Cytokine and Sample Being Tested	IL-17A HC	0.10	0.03	0.02	0.11	0.65	1.08	0.67	0.76	0.43	0.52	0.58
	IL-17A AS	0.04	0.10	0.00	0.05	2.35	3.80	952599.65	1.24	1.40	10.37	14.09
	IFN-g HC	0.15	0.02	0.02	0.23	2.08	2.81	0.00	1.16	1.49	0.58	1.36
	IFN-g AS	0.03	0.08	0.00	0.04	0.30	0.47	0.49	18103.11	12.17	0.80	0.96

O18. Table I. IC50 values for compounds that affect the concentration of IL-17A and IFN-gamma. Each HC and AS participant had their sample tested for both IL-17A and IFN-gamma inhibition. Green cells show compounds with an IC50 lower than that of baricitinib. Yellow cells demonstrate those with similar IC50s to baricitinib.

Poster Presentations

P1

VOLUNTARY WHEEL RUNNING MODEL IN MICE TO MECHANICALLY STIMULATE THE ENTHESIS OF THE ACHILLES TENDON

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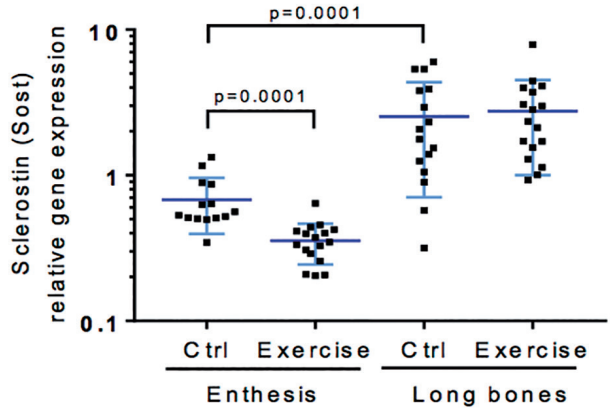
Introduction. Biomechanical stress is proposed to occupy a central place in spondyloarthritis pathophysiology, but the precise molecular and cellular mechanisms underlying the excessive bone formation of the peripheral entheses remain elusive. We aimed to develop and characterize an *in vivo* model in mice to study the impact of mechanical stimulation on the enthesis of the Achilles tendon.
Methods. DBA/1 mice were subjected to voluntary running exercise by the use of activity wheels for two weeks, and compared to mice housed in standard conditions (n=17 per group). Posterior legs were recovered and mRNAs were extracted from long bones and ankles' entheses for gene expression analysis.
µCT was performed on the femur and calcaneus bones. Von Kossa staining was carried out in ankle histological sections. Il-6 and Il-8/Kc and alkaline phosphatase were measured in serum samples by Luminex and enzymatic assays.
Results. Free access to the activity wheel resulted in a running exercise of 5.5±0.8 km/day (≈80 km in total) at 14.5±0.5 m/min. Sclerostin (*Sost*) gene expression was neatly reduced in entheseal tissues, as expected for such a mechanosensitive marker, but no modulation was observed in long bones (Fig. 1). Similarly, exercise-induced downregulation of *Osterix* and *Runx2* expressions was restricted to enthesis samples. No effect was observed neither on the femur nor on the calcaneus architectures by µCT or von Kossa staining.
Alkaline phosphatase activity in serum samples and mRNA levels in tissue extracts were unchanged. No inflammatory response was detected as Il-8/Kc serum levels were similar in the control and the exercising group (59±14 vs 57±14 pg/mL); Il-6 was not detected.



P1. Fig.1.

Conclusions. Our investigation of the tissue-specific pattern of the exercise-induced response is still in progress, but we believe that this experimental design will be useful to study the role of mechanical stimulation specifically in the enthesis.

Acknowledgements. Arthritis Foundation Courtin (2020)

P2

ELUCIDATING THE DIFFERENTIATION BIAS OF NAÏVE CD4+ T CELLS IN HLA-B27 TRANSGENIC RAT (B27-RAT) MODEL OF SPONDYLOARTHRITIS (SpA)

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Introduction. In the B27-rat, SpA development correlates with biased expansion of T_H17 cells, thought to have a pathogenic role. The aim of this study was to dissect the upstream mechanisms underlying naïve CD4+ T cells differentiation bias.
Materials and Methods. We analysed the phenotype of $CD4^+CD25^-CD62L^{high}$ (naïve) CD4+ T cells isolated from lymph nodes (LN) of SpA-prone B27-rats in comparison with nontransgenic (NTG) littermates and disease-free HLA-B7 transgenic rats (B7-rats), and their transcriptome profile using RNA-sequencing.
Results. *Ex vivo* resting naïve CD4+ T cells from B27-rats mesenteric LN did not reveal increased level of TNF-α, and did not express either IFN-γ, nor IL-17A. However, after *in vitro* stimulation using coated anti-CD3 and soluble anti-CD28 antibodies, naïve CD4+ T cells displayed a proinflammatory phenotype with increased expression of CD25, ICOS, TNF-α, IFN-γ and IL-17A, as compared to NTG- and B7-rats. Importantly, such increased reactivity was also present before disease development; and also observed in salivary LN, draining non-inflammatory tissues. The transcriptome of resting naïve CD4+ T cells from both 4-wk and 3-mo old B27-rats revealed a T_H17 profile (Batf/Stat3 upregulation), and a reverse IFN signature (Tbx21/Usp18/Ifit2/Ifi27 downregulation). Interestingly, splenic conventional type 2 dendritic cells (cDC2) from B27-rats potentiated the proinflammatory phenotype of naïve CD4+ T cells from B27-rats mesenteric LN, after *in vitro* stimulation using soluble anti-TCRαβ antibody, in comparison with NTG-cDC2. Such effect was characterized by the upregulation of TGFβ, PI3K and MAPK pathways-related genes in B27-$CD4^+$ T cells after 1 day of contact with B27-cDC2, in comparison with NTG-cDC2.
Discussion. Naïve CD4+ T cells from B27-rats are skewed to develop a proinflammatory phenotype, which is further promoted by their crosstalk with B27-cDC2, prior to disease onset. Deciphering the early key molecular events underlying those findings will allow to identify new therapeutic targets in SpA.

Acknowledgement. This work was supported by grant from the French Society of Rheumatology (SFR).

P3

LONG-TERM COURSE OF SERUM MARKERS OF BONE TURNOVER DURING 10 YEARS OF TNF-α INHIBITORS IN PATIENTS WITH ANKYLOSING SPONDYLITIS

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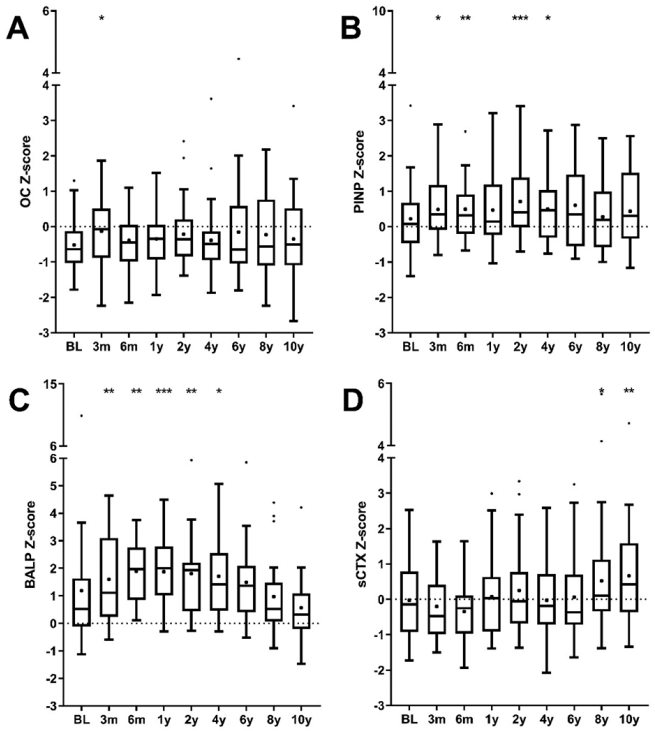
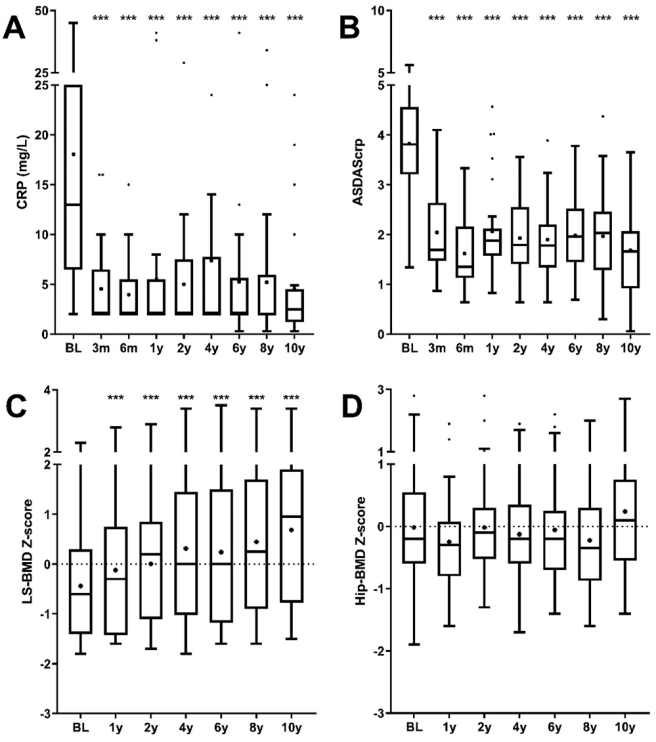
Introduction. Bone mineralization marker BALP increased significantly during the first 3 years of treatment with TNF-α inhibitors (TNFi) (1). Currently, we investigated the prolonged course of serum markers of bone formation and resorption during 10 years of TNFi in AS patients.
Material and Methods. Included were consecutive AS outpatients from the UMCG GLAS cohort who were treated with TNFi (maximum one switch) for 10 years. Patients were excluded when they used bisphosphonates. Data was coded as missing when patients experienced a fracture or received systemic corticosteroids within 1 year. Standardized follow-up visits were performed at baseline, 3 and 6 months, 1 and 2 years and continued biannually. Markers of bone formation OC, PINP and BALP, and marker of bone resorption sCTX were measured in serum. Z-scores were calculated to correct for age and gender. Generalized estimating equations were used to analyze BTM Z-scores over time within patients.
Results. In total, 29 AS patients were analyzed; 66% male, age 38.8±10.1 years, 86% HLA-B27 positive. Bone regulation marker OC was significantly increased only at 3 months compared to baseline. Collagen formation marker PINP had a variable course with significantly increased levels at 3 and 6 months, 2 and 4 years. Bone mineralization marker BALP was significantly increased at all time points up to and including 4 years and returned to baseline levels thereafter. Collagen degradation marker sCTX was significantly increased at 8 and 10 years (Fig. 1). Disease activity (ASDAS and CRP) showed rapid and sustained improvement after start of TNFi. BMD of the lumbar spine improved significantly at all time points compared to baseline. No significant improvement was seen in BMD of the hip (Fig. 2).
Conclusion. In this subgroup of AS patients receiving long-term TNFi, bone turnover balance favored bone formation during the first years before returning to baseline levels. After 8-10 years of TNFi, collagen degradation was found to be increased.

Reference

1. ARENDS *et al.*: *Arthritis Res Ther* 2012; 14(2): R98.



P3. Fig. 1. Z-scores of bone regulation marker OC (A), collagen foration marker PINP (B), bone mineralization marker BALP (C) and collagen degradation marker sCTX during 10 years of TNFi in patients with AS (n=29). Box-and-whisker plots (Tukey). boxes indiate medians with interquartile ranges, + indicates mean, whisker indicate 1.5 times interquartile distances, • indicate outlies.



P 3. Fig. 2. Levels of acute phase reactant CRP (A), disease activity index score ASDAScrp (B), and BMD Z-scores of the lumber spine (L1-L4) (C) and hip (total proximal femur) (D) during 10 years of TNFi in patients with AS (n=29). Box-and-whisker plot (Tukey): boxes indicate medians with interquartile ranges, + indicates mean: whiskers indicate 1.5 times interquartile distances; • indicate outlies.

P4

GDF15 IS NOT REQUIRED FOR NORMAL OSTEOCLAST FUNCTION NOR STEADY STATE AND OSTEOPOROSIS

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Introduction. Bone loss is a common feature of spondyloarthritis, however the molecular mechanisms governing it are not clear. Growth differentiation factor 15 (GDF15) is an emerging regulator of energy homeostasis and is known to be elevated in the serum of rheumatoid arthritis patients. It acts exclusively through stimulation of its receptor, GFRAL, in the medulla. *In vitro*, exogenous GDF15 was shown to stimulate osteoclast differentiation and in vivo hypoxia-induced GDF15 correlates with bone loss. Our goal was to use GDF15 loss-of-function and systemic overexpression approaches to determine a role for this molecule in bone homeostasis.
Methods. Bone marrow-derived osteoclasts from GDF15 knockout (KO) mice and wildtype (WT) littermates were cultured. TRAP staining and bone resorption assays were used to assess osteoclast function. To assess bone phenotype *in vivo*, tibiae μCT scans of GDF15-KO and GFRAL-KO mice and were quantified. To model non-inflammatory bone loss (osteoporosis), we performed ovariectomy of females, and examined aged male mice (15-month-old). We used GDF15-EEV (Enhanced Episomal Vectors) to overexpress GDF15 is C57Bl/6 mice and quantified bone density.
Results. The absence of GDF15 does not affect normal osteoclast differentiation nor function in vitro. In steady state, GDF15-KO nor GFRAL-KO mice show any changes to bone density. Both the ovariectomy-induced model as well as ageing did not show any difference in bone density in GDF15-KO mice compared to its WT littermate controls. Using GDF15-EEV, we found that overexpression of GDF15 results in dose-dependent bone loss.
Conclusions. In sum, contrary to what the literature suggests, GDF15 is not required for a normal bone homeostasis, nor osteoporotic bone loss in a comprehensive set of *in vitro* and *in vivo* experiments. In contrast, when GDF15 is overexpressed, bone loss occurs. Future studies will examine the role of GDF15 in murine models of arthritis as proof-of-concept for targeting it to prevent SpA-associated bone loss.

P5

PREDICTORS OF ANKYLOSING SPONDYLITIS ACTIVITY DURING PREGNANCY

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Introduction/Aim. The aim of this work is to evaluate predictors of ankylosing spondylitis (AS) activity during pregnancy.
Materials and Methods. 36 pregnant women who met the modified New York AS criteria (1984) were included in a prospective follow-up. 36 pregnancies were traced. The average patients' age was 31.6±4.8 years, the duration of the disease was 134.9±89.3 months. The BASDAI for 1 – 3 months before conception, in the I, II and III trimesters was on average 2.3±1.9, 2.8±1.7, 3.2±1.9 and 3.3±2.1, respectively. 11 (30.6%) patients received biological drugs (antiTNF-α) for 1-3 months before pregnancy; 8 (22.2%) patients received them in the month of conception; in the first and second and third trimesters of pregnancy – 4 (11,1%), 4 (11,1%) and 1 (2.9%) women, respectively. 25 (69.4%) women planned pregnancy. The visits were conducted at 10-11, 20-21, and 31-32 weeks of pregnancy.
Results. Risk factors for high AS activity (BASDAI >4) was high activity of AS for 1-3 months before conception (odds ratio (OR) in the first and second trimesters – 24 (95% CI 2.3-252.5) and 6 (95% CI 0.9-40.1), respectively; absence of pregnancy planning (OR for trimesters – 9.1 (95% CI 1.8-46.8); 31.5 (95% CI 4.5-221.9) and 16 (95% CI 2.6-100), respectively; cancellation of biological drugs on the eve of pregnancy and in the first trimester (OR in the second and third trimesters – 24.8 (95% CI 1.2-512.5) and 21.3 (95% CI 1.0-436.2), respectively; $p<0.01$ in all cases. In addition, risk factors for high AS activity in the third trimester was the BASDAI >4 in the first (OR - 7.4; 95% CI 1.4-37.9) and second trimesters (OR-9.6; (95% CI 1.8-50.3), $p<0.01$.
Conclusion. The absence of pregnancy planning, the BASDAI at the time of conception and in the first trimester of pregnancy, the cancellation of biological drugs 1-3 months before conception and in the first trimester are predictors of AS activity during gestation.

P6

DISADVANTAGES OF USING THE BASDAI INDEX TO ASSESS ANKYLOSING SPONDYLITIS ACTIVITY DURING PREGNANCY

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Introduction. Low back pain and fatigue can physiologically occur during normal pregnancy in many females, including those with ankylosing spondylitis (AS). Is it appropriate to use the BASDAI index during gestation, given that fatigue and back pain scoring make a significant contribution into the final result?
Aim. To assess the BASDAI index reliability during gestation.
Materials and Methods. The study group included 36 pregnant women with AS (modified New York criteria, 1984). Patients' mean age was 31.6±4.8 years, mean age at AS onset was 21.8±10.9., and disease duration - 134.9±89.3 months. The control group included 30 healthy pregnant women with no history of back pain and arthritis, their mean age was 28.2±4.5 years; during pregnancy, 10 (33.3%) of them experienced back pain. Control visits were scheduled at 10-11, 20-21, and 31-32 weeks of pregnancy.
Results. BASDAI values in AS patients by trimesters of pregnancy were as follows: 2,8±1,7; 3,2±1,9; 3,3±2,1. Throughout pregnancy, BASDAI scores were lower in the control group than in AS patients (p<0.01). However, no differences were found when comparing BASDAI values of AS patients and healthy women with back pain during pregnancy (by trimesters-1.9±0.9; 2.1±1.1 and 2.1±0.8). When comparing individual BASDAI components, all indicators were higher in AS patients, except for fatigue and back pain levels. The level of fatigue did not differ between pregnant women with AS (5[3; 7] and 5[3; 6]) and healthy women (5[3; 8] and 5[4; 6]) in the I and II trimesters, while in the III trimester, fatigue in healthy pregnant women (6[4; 8]) was higher than in AS patients (5[3; 6], p=0.01).
Conclusion. BASDAI components: severity of back pain and fatigue (consequently the index itself) reflect not only the activity of AS, but also changes associated with physiological pregnancy, which indicates a lack of reliability of the BASDAI index during gestation. The BASDAI index requires adaptation for use in pregnancy.

P7

PROGRESSION OF RADIOGRAPHIC SACROILIITIS IN PATIENTS WITH EARLY AXIAL SPONDYLOARTHRITIS OVER 3 YEARS OF FOLLOW-UP

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Background. According to different studies, the percentage of progression in patients (pts) with non-radiographic axial spondyloarthritis (nr-axSpA) to the ankylosing spondylitis (AS) (modified New York (mNY) criteria) varies.
Objective. to estimate the radiographic progression in sacroiliac joints (SIJ) over 3 years of follow-up in pts with nr-axSpA from the CORSAR cohort.
Materials and Methods. The study included patients from the CORSAR cohort (Moscow Cohort of Early SpondyloArthritis) with axSpA (ASAS, 2009, disease duration<5 y.). The cohort includes 175 pts with axSpA; the analysis included 56, followed for at least 3 y. To assess the progression of SIJ we used the total SIJ score: the sum of the mNY grading system in the left and right SIJ, which calculated at baseline and after 3 y. Progression was defined as the shift from non-radiographic to radiographic sacroiliitis (by AS modified mNY criteria) or a change in total SIJ score of at least one grade.
Results. At baseline, among 56 pts included in the analysis, 29 (55,3%) had AS, and the rest had nr-axSpA. After 3 y., the number of pts with AS increased to 43 (76,7%), that is, 14 (51,8%) of 27 patients with nr-axSpA switched to the AS group. The average value of total SIJ score (M ± σ) for 3 y. increased by 0.8 stage from 3.3±1.5 to 4.1±1.2. When comparing patients with and without progression, it was found that almost half of the pts in the progression group had AS heredity, in contrast to the compared group, where there was no family history of AS (6 (42,8%) vs 0, p<0,05). In the group without progression, there were more pts with low disease activity according to ASDAS CRP <1.3 (1 (7,1%) vs 3 (23,0%), p<0,05) and BASDAI <4 (5 (35,7%) vs 10 (76,9%), p<0,05).
Conclusions. During 3 y. of follow-up of the CoRSAR cohort, 55,3% of pts with nr-axSpA developed AS.

P8

RADIOLOGICAL PROGRESSION OF THE HIP JOINTS LESIONS OF THE PATIENTS WITH EARLY ANKYLOSING SPONDYLITIS

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Introduction. According to the statistical data of Autoimmune disease occurrence in Russian Federation, there are as much as half patients with hip joint lesions due to Ankylosing Spondylitis. Although the abovementioned lesions of hip joints are common, the causes and rates of progression have not been studied.
Objective. The goal of this study was to evaluate the radiological progression of the hip joint lesions in patients suffering from early axial spondyloarthritis (axSpA). The follow-up period was two consecutive years.
Material and Methods. We analyzed 38 patients who had had axSpA without hip joint involvement (mean age 30,8±9,6 years; each meets ASAS criteria 2009). We've included patients who were under the medical observation for at least 2 years; at the beginning of our study all patients have been examined to exclude x-ray and ultrasound signs of hip lesion. At the end of 2-year follow-up period, all patients underwent a complete clinical, laboratory and instrumental diagnostics. The following diagnostics were performed: BASDAI, ASDAS-CRP, BASFI, radiological HJ changes (BASRIhip), ultrasound examination (US) to search for US signs of coxitis (capsular-neck distance CND >7 mm - the distance between the anterior joint capsule and the femoral neck bone surface).
Results. To perform statistical analysis all patients were divided in two groups depending on BASRI hip. The analysis revealed: group 1 (BASRI hip 0-1) (n=24) the duration of the axSpA Me [25‰, 75‰] 18 [6; 27,8] months and group 2 (BASRI hip II-IV) (n=14) Me [25‰, 75‰] 24 [14,0;40,8] months (p>0,05). The comparative analysis revealed the following laboratory data of groups 1 and 2: BASDAI 3,3 [2,2;4,5] vs 2,8 [1,6;4,4] (p>0,05); Age 28 [25,8;31,0] vs 29 [25,0;31,5] (p>0,05); BASFI 0,9 [0,3;2,0] vs 0,9 [0,3;1,5] (p>0,05); ASDAS (CRP) 2,4 [1,6;2,7] vs 2,3 [1,3;3,0] (p>0,05); ESR mm/h 24 [5; 30] vs 23 [8; 35] (p>0,05); CRP mg/mL 24 [5; 30] vs 23 [8; 35] (p>0,05); CND mm. 5,2 [4,2;5,9] vs 5,1 [3,9;5,6] (p>0,05).
Conclusion. Some patients have axSpA without signs of coxitis, but reveal X-ray signs of the hip joint lesions during the first years of disease progression. Coxitis development does not depend on the disease stage and the patients' gender.

P9

TREATMENT EFFICACY OF NON-STEROIDAL ANTI-INFLAMMATORY DRUGS ON X-RAY PROGRESSION OF THE HIP JOINTS LESIONS

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Introduction. Coxitis is one of the most common causes of early disability in patients with axial spondyloarthritis (axSpA). According to epidemiological statistics of the burden of autoimmune diseases in Russian Federation, almost half of patients with ankylosing spondylitis (AS) have coxitis. Because of presence of hip joints (HJ) lesions, axSpA is being presented with moderate or severe course mostly. However, according to epidemiological studies in Russia, only 7% of patients require hip arthroplasty.
Objective. We conducted this study to evaluate the effect of nonsteroidal anti-inflammatory drugs (NSAIDs) on the activity and radiographic progression of the hip joint lesions in patients with axSpA.
Material and Methods. We analyzed 25 patients with axSpA (mean age 31.1 ± 7.0 years; meet ASAS criteria 2009) who were continuously taking NSAIDs for at least 2 years. All patients had had clinical or diagnostic symptoms of coxitis (presence of pain in HJ with or without HJ functional limitations (FL)). Mean age was 30,8±9,6 years at the disease onset. The following diagnostic studies were performed: BASDAI, ASDAS-CRP, BASFI, inter-malleolar distance (IMD), MRI in T1 and STIR regimens.
Results. X-ray progression of coxitis was observed in 12 (48%) patients who's increased hip BASRI from <2 to 9 (36%). The comparative analysis of baseline parameters and after two-year follow-up: BASRI hip<2 n %1 (4%) vs 9 (36%) (p<0,05); Osteitis n,(%) 5 (20%) vs 5 (20%) p>0,05; Synovitis n(%) 25 (100%) vs 13 (52%) (p<0,05)*; BASDAI 3,3 [2,2;4,5] vs 2,8 [1,6;4,4] (p>0,05); BASFI 1,0 [0,2;1,7] vs 0,8 [0,2;2,8] (p>0,05); ASDAS (CRP) 2,4 [2,0;2,8] vs 2,0 [1,1;2,3] (p>0,05); ESR mm/h 24 [5; 30] vs 23 [8; 35] (p>0,05); CRP mg/mL 5,2[1,5;12,8] vs 5,4[0,9;18,5] (p>0,05); CND mm., 6,8 [5,9;7,2] vs 6,2 [5,6;7,8] (p>0,05).
Conclusion. Regular use of NSAIDs allows reduction of the hip joint effusion according to MRI data. However, this treatment does not affect the radiographic signs of coxitis progression.

P10

CORRELATION OF RADIOLOGICAL PROGRESSION AND MRI CHANGES OF THE HIP JOINTS IN PATIENTS WITH AXIAL SPONDILOARTHRITIS

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Introduction. Almost half of patients with axial spondyloarthritis (axSpA) in Russia have hip joint lesions (HJ), but the causes and rates of HJ leasions progression have not been studied.
Objective. This study was conducted to assess the correlation between radiological signs of progression and MRI changes of the hip joints in patients with axSpA after two years of follow-up.
Material and Methods. We analyzed 77 patients with axSpA (mean age 31.1±7.0 years; meet ASAS criteria 2009) and clinical/diagnostic symptoms of coxitis. The following diagnostic studies were performed: radiological HJ changes (BASRIhip), ultrasound examination (US) (capsular-neck distance CND >7 mm - the distance between the anterior joint capsule and the femoral neck bone surface) and MRI in T1 and STIR regimens.
Results. At the baseline 19 patients had had radiological changes of the hip joints (BASRI hip <2). After to 2 years follow-up, there were 48 (62%) patients with radiological changes of the hip joints. At baseline synovitis was detected in 75 (97%) patients and osteitis in 22 (29%) patients on MRI studies. At the end of 2 years follow-up, synovitis persisted in 46 (40%) patients and osteitis in 17 (22%) patients (p>0.05). To run the statistical analysis all patients were divided in two groups based on their BASRI hip. The analysis revealed that in group 1 (ΔBASRI hip = 0) (n=33) the duration of the axSpA was Me [25‰, 75‰] 36 [19;132] and group 2 (ΔBASRI hip> 0) (n=44) - 48 [24;84] months (p>0,05). The comparative analysis revealed the following laboratory data of groups 1 and 2: BASDAI 4,3 [3,1;5,8] vs 4,7 [3,8;6,3] (p>0,05); BASFI 3,4 [0,6;5,6] vs 2,1 [1,1;4,2] (p>0,05); ASDAS (CRP) 2,6 [1,6;3,9] vs 3,2 [2,3;4,2] (p>0,05); ESR mm/h 15 [7;30] vs 23,0[12;35] (p>0,05); CRP mg/mL 12,8 [1,8;31,0] vs 17,8 [5,6; 50,3] (p>0,05); CND mm. 6,8 [5,9;7,6] vs 7,6 [7,2;8,4] (p>0,05).
Conclusion. The progression of coxitis does not depends on the activity of the disease, patients gender, and MRI signs of inflammation in the hip joints.

P11

MATERNAL AND NEONATAL PREGNANCY OUTCOMES IN ANKYLOSING SPONDYLITIS

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Introduction. The goal of the study was to evaluate maternal and neonatal pregnancy outcomes in AS patients.
Material and Methods. The prospective study included 36 pregnant women with AS (modified New York criteria, 1984). Mean patients' age was 31,6±4,8 years, duration of the disease – 134,9±89,3 months. AS activity based on BASDAI in trimesters was: first – 2,8±1,7, p<0,05, second – 3,2±1,9, third – 3,3±2,1.
Results. 34 full term pregnancies resulted in labor at 39 [38; 40] weeks of gestation. Adverse pregnancy outcomes were documented in 2 cases (5,6%): a missed miscarriage at 18 gestation weeks in a woman with burdened maternal obstetric history due to moderate AS activity; and medical abortion at 23d week of gestation following critical condition of the fetus due to persistent high AS activity with severe axial and extra-articular manifestations of the disease. Threatened early miscarriage occurred in 11,1% of women, threatened premature labor – in 11,8%, late premature birth – in 5,9%. No association was found between disease activity, therapy, and preterm birth. There were no cases of preeclampsia. 52,9% of the patients had vaginal delivery, and 47,1% had a caesarean section (CS), which was elective in 87,5% of all CS cases. Damage of hip joints with impaired function, scar on the uterus, abnormal position and presentation of the fetus, and a clinically narrow pelvis were considered as indications for elective CS. Emergency C-section was performed in cases of fetal hypoxia or uterine inertia. Average birthweight of newborns was – 3384,4±382,0 g, and length –51,5±2,0 cm, Apgar score 8,0±0,4 / 8,9±0,4. Congenital abnormalities were registered in three (8,6%) newborns: a slit-like defect of the atrial septum, a defect of the interventricular septum, and unilateral hydronephrosis.
Conclusion. Pregnancy outcomes in AS do not differ from those in general population, except for higher rates of elective C-sections. However, preterm births issue in AS patients requires further studies due to higher than in general population threatened preterm labor rates.

P12

PREDICTORS OF AXIAL INVOLVEMENT IN EARLY PSORIATIC ARTHRITIS

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Introduction/Aim. To identify predictors of axial involvement in PsA patients at early-stage of disease.
Materials and Methods. 95 patients (M/F–47/48) with early PsA fulfilling the CASPAR criteria were included. All patients had peripheral arthritis for ≤2 years. Mean (Me) age 36.5±10.7 years, disease duration 12.2±10.3 months. Patients underwent standard clinical examination of PsA activity. Me disease activity indexes DAS=4.0±1.4, BASDAI=4.5±1.6. All patients were evaluated for the presence of inflammatory back pain (IBP) by ASAS criteria, underwent sacroiliac joints (SIJs) X-ray and HLA B27 status study. MRI of SIJs was performed in 79 pts, regardless of IBP presence, on Signa Ovation 0.35T. Radiographic sacroiliitis (R-SI) was identified according to New York criteria (unilateral grade≥3 or bilateral grade≥2). Bone marrow edema on MRI (STIR) was considered active MRI sacroiliitis (MRI-SI). X-ray and MRI results were evaluated by an independent reader. IBP was observed in 63 (66.3%) cases, MRI-SI in 28 of 79 (35.4%) examined cases, R-SI in 29 (30.5%) cases. Skin lesion severity was evaluated as body surface area (BSA) affected: minor at <3%, mild at 3-10%, severe at >10%. Pts were split into 2 groups: those with axial involvement (axPsA), that is with IBP and/or R-SI and/or MRI-SI; and those without axial involvement (having only peripheral PsA [pPsA]). The axPsA group included 65 (68.4%) cases, the pPsA group 30 (31.6%) cases. Multi-dimensional step-by-step discriminant analysis was used to identify a group of features that are more typical for the axPsA patients.
Results. The following features proved to be the most informative: male sex (p=0.300), presence of HLA B27 (p=0.107), mild or high DAS (p=0.098), skin lesion severity BSA>3% (p=0.118), and CRP >5 mg/L (0.038).
Conclusion. Combination of features: male sex, HLA-B27 positivity, mild or high activity according to DAS, CRP > 5 mg/L, and BSA>3% – that constitutes a clinical predictor for the development of axial involvement in early PsA.

P13

ASSOCIATION OF AXIAL INVOLVEMENT IN PSORIATIC ARTHRITIS WITH WORSE DISEASE OUTCOMES

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Introduction/Aim. To analyze characteristics of psoriatic arthritis (PsA) patients with and without radiographic sacroiliitis (R-SI).
Materials and Methods. 385 patients (M/F–172 /213) with PsA according to CASPAR criteria were included in the Russian PsA registry. Median age 45 (20–80) years, disease duration 3.4 (0.5 – 32) years. Patients underwent standard clinical examination. The examination included X-ray of sacroiliac joints. R-SI was defined as bilateral grade ≥ 2 or unilateral grade ≥ 3. Skin lesion severity was evaluated by body surface area (BSA) affected. Patients were split into two groups: with R-SI [R-SI(+)] and without R-SI [(R-SI(-)]. Group R-SI(+) included 214 (55.6%) cases, group R-SI(-) 171 (44.4%) cases.
Results. The following differences were revealed between group R-SI(+) and group R-SI(-). In tender joint count: in group R-SI(+) it was 9 [14-18], in group R-SI(-) – 6 [3-12] (p=0.02). In disease activity by DAPSA: in group R-SI(+) DAPSA was 28.40 [15.65-43.65], in group R-SI(-) – 20.0 [12.45-30.0] (p=0.00). In disease activity by BASDAI: in group R-SI(+) BASDAI was 1.6 [0-5.1], in group R-SI(-) – 0 [0-4.5] (p=0.00). In Leeds Enthesitis Index: in group R-SI(+) it was 0 [0-2], in group R-SI(-) – 0 [0-1] (p=0.02). In frequency of dactylitis: in group R-SI(+) 71 patients had dactylitis, 143 didn't have; in group. R-SI(-) 32 and 139 patients, respectively; OR 2.2 [1.3-3.5]. In erosive arthritis of feet: in group R-SI(+) 58 patients had erosive arthritis of feet, 156 didn't have, in group R-SI(-) 29 and 142 patients, respectively; OR 1.8 [1.1-3.0]. In more extensive skin lesion area: in group R-SI(+) BSA <3% had 120 patients, BSA >3% had 94 patients, in group R-SI(-)141 and 57 patients, respectively; OR 0.6 [0.4-0.97]. CRP in group R-SI(+) was 0.9 [0.4-2.2] mg/dl, in group R-SI(-) – 0.8 [0.3-1.3] mg/dl (p=0.029).
Conclusion. PsA patients with axial involvement have significantly worse disease status measured by disease activity, more severe erosive peripheral arthritis, higher frequency of enthesitis and dactylitis, worse skin psoriasis, higher CRP.

P14

SIMILAR CLINICAL RESPONSES, SAFETY AND TREATMENT PERSISTENCE WITH USTEKINUMAB IN YOUNGER VS OLDER PATIENTS WITH PSORIATIC ARTHRITIS AT 12 MONTHS IN THE REAL-WORLD PSABIO STUDY

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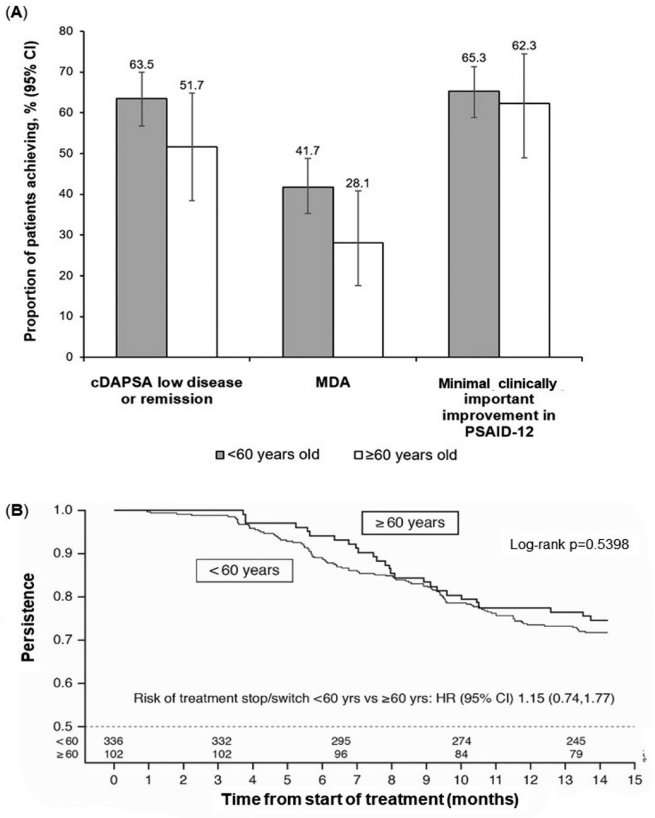
Introduction. Long-term management of psoriatic arthritis (PsA) can be challenging in elderly patients owing to comorbidities and increased risk of adverse events (AEs) from therapies. Here, we report real-world data from PsABio (NCT02627768) on effectiveness, safety and treatment persistence with ustekinumab, stratified by age.

P14. Table I. Baseline demographics and clinical characteristics of enrolled patients with psoriatic arthritis treated with ustekinumab and stratified by age.

Mean (95% CI) unless otherwise stated	Age <60 years (n=336*)	Age ≥60 years (n=102*)
Age, years	46.1 (45.1 ; 47.1)	67.3 (66.1 ; 68.5)
Sex, male, % (95% CI)	43.8 (38.4 ; 49.2)	44.1 (34.3 ; 54.3)
Body mass index, kg/m²	28.3 (27.6 ; 28.9)	29.5 (28.2 ; 30.9)
Disease duration since initial diagnosis, years	6.9 (6.1 ; 7.7)	9.5 (7.6 ; 11.5)
Swollen joint count, 66 joints	5.9 (5.0 ; 6.9)	6.0 (4.3 ; 7.6)
Tender joint count, 68 joints	12.7 (11.2 ; 14.2)	11.7 (9.2 ; 14.2)
HAQ-DI	1.09 (1.01 ; 1.16)	1.25 (1.11 ; 1.39)
CRP, mg/dL, median (interquartile range)	0.5 (0.2 ; 1.2)	0.7 (0.3 ; 1.6)
cDAPSA score, % (95% CI)	30.7 (28.2 ; 33.1)	30.3 (26.1 ; 34.5)
Remission	3.2 (1.5 ; 6.1)	1.3 (0.0 ; 6.8)
Low	10.1 (6.8 ;14.2)	10.0 (4.4 ; 18.8)
Moderate	39.9 (34.1 ; 45.9)	37.5 (26.9 ; 49.0)
High	46.8 (40.8 ; 52.8)	51.3 (39.8 ; 62.6)
MDA, % (95% CI)	4.9 (2.7 ; 8.0)	2.5 (0.3 ; 8.7)
PsAID-12	5.7 (5.5 ; 6.0)	5.8 (5.4 ; 6.2)
Comorbidities, % (95% CI)		
Cardiovascular/metabolic syndrome	30.7 (25.8 ; 35.9)	79.4 (70.3 ; 86.8)
Inflammatory bowel disease	1.8 (0.2 ; 6.9)	2.0 (0.2 ; 6.9)
Uveitis	0.3 (0.0 ; 1.6)	0.0 (0.0)
Concomitant treatment, % (95% CI)		
Methotrexate	30.1 (25.2 ; 35.3)	29.4 (20.8 ; 39.3)
Corticosteroids	30.1 (25.2 ; 35.3)	41.2 (31.5 ; 51.4)

Values are for patients with available outcome data.
*n=number of enrolled patients.
cDAPSA, Clinical Disease Activity Index for Psoriatic Arthritis; CI, confidence interval; CRP, C-reactive protein; HAQ-DI, Health Assessment Questionnaire – Disability Index; MDA, minimal disease activity; PsAID-12, Psoriatic Arthritis Impact of Disease 12-item Questionnaire



cDAPSA, clinical Disease Activity Index for Psoriatic Arthritis; CI, confidence interval; HR, hazard ratio; MDA, minimal disease activity; PsAID-12, Psoriatic Arthritis Impact of Disease 12-item Questionnaire

P14. Fig. 1. (A) Disease activity scores at 12 months and **(B)** treatment persistence in patients with psoriatic arthritis treated with ustekinumab and stratified by age.

Methods. PsABio is a multinational, prospective, observational study of patients with PsA prescribed either ustekinumab or a tumour necrosis factor inhibitor as 1st/2nd/3rd-line biologic therapy. Effectiveness and safety at 12 months were evaluated by age (<60 vs ≥60 years [younger vs older group]). Treatment persistence (evaluated with Kaplan-Meier plots and log-rank test) and risk of stopping treatment (Cox regression) were compared between groups.
Results. Data are available for 438 patients receiving ustekinumab (77.1% aged <60 years). Baseline characteristics were similar between groups, although a greater proportion of patients in the older group had cardiovascular comorbidities and a longer PsA duration (Table I). There were no significant differences in composite effectiveness outcomes or disease impact (Fig. 1A). AEs were reported in 114 (24.4%) patients, with a numerically higher proportion in the older vs younger group (28.7% vs 23.1%, respectively); 10 (9.3%) and 11 (3.1%) patients reported serious AEs, respectively. A slightly higher proportion of infections was reported in the older group (12 [11.1%] vs 27 [7.5%]). Neither treatment persistence (log-rank p=0.5398) nor risk of stopping/switching (hazard ratio [95% CI]: 1.15 [0.74 ; 1.77], younger vs older) differed significantly between age groups (Fig. 1B).
Conclusions. In a real-world setting, no clinically meaningful differences were observed in effectiveness, safety or treatment persistence of ustekinumab over 12 months between younger vs older age groups in patients with PsA.

P15

USTEKINUMAB AND TNFI SAFETY DATA AND CARDIOVASCULAR EVENTS IN PSORIATIC ARTHRITIS: RESULTS FROM THE REAL-WORLD PSABIO STUDY

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Introduction. The safety of biologics, including cardiovascular (CV) safety, is important to assess in psoriatic arthritis (PsA).[1] The objective was to describe adverse events (AEs) with ustekinumab or tumour necrosis factor inhibitor (TNFi) treatment in a real-world cohort of patients with PsA.
Methods. In PsABio (NCT02627768), a multinational, real-world study, all AEs, including early CV AEs, were identified with Medical Dictionary for Regulatory Activities terms and stratified by time of occurrence after treatment initiation (0–6 or 6–12 months).
Results. Data were available for 929 patients (458 ustekinumab, 471 TNFi).

P15. Table I. Baseline characteristics in the PsABio study.

	Ustekinumab (n=458)	TNFi (n=471)
Age, years	51.0 (49.8 ; 52.1)	48.5 (47.3 ; 49.6)
Sex, female, % (95% CI)	56.1 (51.4 ; 60.7)	54.1 (49.5 ; 58.7)
Disease duration, years	7.4 (6.7 ; 8.2)	6.2 (5.6 ; 6.8)
Body mass index, kg/m²	28.5 (27.9 ; 29.1)	27.7 (27.2 ; 28.2)
Any comorbidity, % (95% CI)	68.8 (64.3 ; 73.0)	60.5 (55.9 ; 65.0)
Cardiovascular disease and/or metabolic syndrome	41.9 (37.4 ; 46.6)	35.9 (31.5 ; 40.4)
Concomitant treatment, % (95% CI)		
Methotrexate	29.9 (25.8 ; 34.3)	41.8 (37.3 ; 46.4)
NSAID	53.7 (49.0 ; 58.4)	68.2 (63.7 ; 72.3)
Biologic treatment, % (95% CI)		
1st line	45.6 (41.0 ; 50.3))	55.0 (50.4 ; 59.5)
2nd line	33.6 (29.3 ; 38.2)	33.1 (28.9 ; 37.6)
3rd line	20.7 (17.1 ; 24.7)	11.9 (9.1 ; 15.2)
Psoriasis skin involvement, BSA >10%, % (95% CI)	24.9 (20.7 ; 29.4)	14.5 (11.3 ; 18.3)
Disease activity scores		
cDAPSA	30.5 (28.6 ; 32.3)	29.1 (27.4 ; 30.8)
HAQ-DI	1.1 (1.1 ; 1.2)	1.2 (1.1 ; 1.2)
PsAID-12	5.4 (5.1 ; 5.7)	5.5 (5.2 ; 5.7)

Values are mean (95% CI) unless otherwise indicated. Values in bold represent significantly different values (non-overlapping 95% CIs) between treatments.
BSA, body surface area; cDAPSA, clinical Disease Activity Index in PsoriaticArthritis; CI, confidence interval; HAQ-DI, Health Assessment Questionnaire – Disability Index NSAID, non-steroidal anti-inflammatory drug; PsAID-12, Psoriatic Arthritis Impact of Disease 12-item questionnaire; TNFi, tumour necrosis factor inhibitor

P15. Table II. (A) Adverse events in the PsABio population stratified by time period since treatment initiation.

	Ustekinumab		TNFi	
n (%)	0–6 months* (n=457†)	6–12 months* (n=467†)	0–6 months* (n=489†)	6–12 months* (n=502†)
Patients experiencing an AE	74 (16.2)	65 (13.9)	101 (20.7)	71 (14.1)
Patients experiencing a serious AE	15 (3.3)	9 (1.9)	11 (2.2)	9 (1.8)
Patients discontinuing treatment because of an AE	18 (3.9)	12 (2.6)	25 (5.1)	13 (2.6)
Death	0 (0)	1 (0.2)	0 (0)	1 (0.2)
Infection	22 (4.8)	21 (4.5)	36 (7.4)	30 (6.0)
Malignancy (excluding non-melanoma skin cancer)	2 (0.4) Cutaneous T-cell lymphoma Parathyroid tumour	2 (0.4) Lung neoplasm Meningioma	2 (0.4) Lung adenocarcinoma Myelodysplastic syndrome	1 (0.2) Renal oncocytoma
Non-melanoma skin cancer	1 (0.2) Bowen's disease	1 (0.2) Seborrhoeic keratosis	0 (0)	2 (0.4) Basal cell carcinoma Squamous cell carcinoma
Patients experiencing a CV AE‡	1 (0.2) Extrasystoles	1 (0.2) Bradycardia	4 (0.8)§ Atrial fibrillation Cardiac flutter Supraventricular tachycardia Tachyarrhythmia Tachycardia	2 (1.0)§ Atrial fibrillation Arrhythmia
Cerebral ischaemia	1 (0.2)	0 (0)	0 (0)	0 (0)

0–6 months was defined as any AE starting ≤182 days of treatment initiation, and 6–12 months was defined as any AE starting >182 after treatment initiation.
†During the 12-month follow-up, patients could switch from ustekinumab to TNFi, or from TNFi to ustekinumab; in these patients, an AE was attributed to both treatments if it occurred within 91 days after discontinuation of 1st and within 91 days after initiating the other. Therefore, some patients are included in both the ustekinumab and TNFi n values.
‡Medical Dictionary for Regulatory Activities search terms included system organ class 'cardiac disorders' or 'nervous system disorders'. All patients except 2 (1 ustekinumab-treated patient [extrasystoles, 0–6 months] and 1 TNFi-treated patient [tachycardia, 0–6 months]) had pre-existing CV disease/metabolic syndrome comorbidity at baseline.
§During 0–6 months, 1 TNFi-treated patient experienced 3 events (2 atrial fibrillation and 1 tachyarrhythmia). The same patient experienced 1 further event of atrial fibrillation during 6–12 months. All other events were experienced by 1 patient each.
AE, adverse event; CV, cardiovascular; TNFi, tumour necrosis factor inhibitor

Compared with the TNFi group, ustekinumab was more often a later-line biologic therapy, more patients had body surface area involvement >10%, patients were older, and fewer were receiving methotrexate or NSAIDs (Table I). The proportion of patients experiencing AEs and serious AEs was similar between treatments (Table II). Few patients reported early CV AEs, all were arrythmias and none were major adverse CV events (1 with ustekinumab and 4 with TNFi during 0–6 months, and 1 and 2 patients, respectively, during 6–12 months [Table II]). Malignancies were similar between treatment groups. A numerically higher proportion of patients discontinued treatment due to an AE with TNFi (7.6%) vs ustekinumab (6.4%).

Conclusions. Up to 12 months, a generally good and similar safety profile was observed for ustekinumab compared with TNFi, with no difference in CV events. The real-world safety profile of ustekinumab in PsABio is consistent with that seen in clinical trials and observational studies.

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P16

QUALITY OF LIFE AND IMPACT OF PSORIATIC ARTHRITIS

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Background/Introduction. The skin and joint involvement in psoriatic arthritis (PsA) have an important impact and deterioration in the quality of life of these patients.
Objectives. To study the possible determinants of the impact of PsA and the quality of life in patients with this pathology.
Methods. Prospective longitudinal study of 83 PsA patients, diagnosed by CASPAR criteria and randomly selected. Outcome variables: quality of life (PsAQoL: Psoriatic Arthritis Quality of Life) and impact of the disease (PsAID: Psoriatic Arthritis Impact of disease). Independent variables: clinical and treatment characteristics. Analysis: description of the sample and study of association using linear, bi and multivariate regression models, using the scores in the questionnaires PsAQoL and PsAID as dependent variables.
Results. We studied 83 patients 48±12 years old with DAS28-PCR of 2.2±4.7. Most of them have mild skin lesions (60%), axial involvement (13%) and oligoarticular involvement (60%). Only 53% receive DMARD, 32% combined therapy and 74.7% presented a therapeutic response (DAS28-PCR <3.2). The mean values of PsAQoL and PsAID were 6.6±5.5 and 3.8±2.4, respectively. In the bivariate analysis, quality of life is determined by axial involvement (β = 4.83, p=0.010), and DAS28-PCR (β=2.21, p=0.008). In the multivariate models, the quality of life decreased significantly with axial involvement (β=4.47, p=0.013,) and DAS28-PCR (β=2.06, p=0.009), without participation of other variables. Regarding the impact of the disease, the bivariate analysis showed only association with axial involvement (β=1.70, p=0.035) and DAS28-PCR (β=0.87, p=0.015). In the multivariate models, the impact is significantly higher in patients with axial involvement (β=1.59, p=0.042), and the increase in the value of DAS28-PCR (β=0.83; p=0.016), without participation of other variables.
The quality of life and the impact of the disease were not related to skin involvement, or any other clinical characteristics studied.
Conclusions. Axial involvement and disease activity are the main determinants of the quality of life in patients with PsA and the impact of the disease, without intervention, in this study. No relationship was found with skin involvement or other clinical and treatment features.

P17

WORK PARTICIPATION IN PATIENTS WITH AXIAL SPONDYLOARTHRITIS IN GERMANY: RESULTS FROM A MULTICENTER, OBSERVATIONAL SURVEY (ATTENTUS-AXSPA)

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Aim. To characterize different domains of work participation [presenteeism, absenteeism, sick leave, unemployment, disability pensions] in axial spondyloarthritis (axSpA) patients (pts) and their associations with demographic and clinical confounders.
Materials and Methods. Pts with confirmed axSpA were enrolled in the ATTENTUS survey conducted across Germany (Nov-2019 to Jul-2020). The survey evaluated impaired work participation, including absenteeism and presenteeism (WPAI). Demographics, clinical parameters and patient related outcomes (PROs) were collected via tablet. Pts without absenteeism (value=0) and presenteeism ≤20% were defined as no impairment at work.
Results. This analysis includes 695 axSpA pts. 50 pts received disability pensions, 29 pts received unemployment benefits, 590 (84.9%) pts reported paid work [part-time: n=132 (22.4%); full-time: n=458 (65.9%)], with 242 (41.0%) pts having no impairments at work. 379 (64.2%) employed pts took sick leave within 12 months (mo) (<3 mo: n=351; 3–6 mo: n=17; >6 mo: n=11). Absenteeism and presenteeism occurred in 140 (23.7%) and 496 (84.1%) pts, respectively. Pts without impairments were mostly of young age, male sex, well-educated, with low disease activity, less fatigue and shorter duration of morning stiffness, and preserved global and physical functioning. There was no difference in terms of biologic treatment, disease duration and BMI between pts with and without impairment of work participation (Table I).

P17. Table I. Descriptive characteristics of the study population.

Mean (SD), unless specified	Impaired WP (n=453)	Full WP (n=242)	p-value	Total (n=695)
Age (yrs)	46.7 (11.1)	42.8 (10.1)	**<0.001**	45.3 (10.9)
BMI	28.5 (14.0)	27.0 (6.8)	0.146	28.0 (12.0)
Male, n (%)	246 (54)	177 (73)	**<0.001**	423 (61)
Disease duration (yrs)	12.7 (11.3)	12.4 (10.2)	0.813	12.6 (11.0)
University-Education, n (%)	104 (23.0)	82 (33.9)	**0.001**	186 (26.8)
In a committed relation, n (%)	310 (68.4)	159 (65.7)	0.464	469 (6.6)
ASAS-HI	8.0 (3.3)	3.7 (3.0)	**<0.001**	6.5 (3.8)
BASDAI	4.8 (1.9)	2.1 (1.6)	**<0.001**	3.9 (2.2)
BASDAI > 4, n(%)	286 (63.1)	28 (11.6)	**<0.001**	314 (45.2)
Fatigue [BASDAI #1]	5.8 (2.1)	2.8 (2.1)	**<0.001**	4.7 (2.5)
Duration morning stiffness [BASDAI #6]	3.5 (2.4)	1.6 (1.8)	**<0.001**	2.8 (2.4)
BASFI	4.2 (2.3)	1.5 (1.5)	**<0.001**	3.3 (2.4)
Biologic treatment, n (%)	230 (50.8)	134 (55.4)	0.390	364 (52.4)
Full time employment, n (%)	256 (56.5)	202 (83.5)	**<0.001**	458 (65.9)
Absenteeism	17.9 (32.1)	0	-	10.6 (26.2)
Presenteeism	48.6 (21.00)	9.6 (8.3)	-	32.6 (25.6)

ASAS-HI, Assessment of SpondyloArthritis International Society-Health Index; BASDAI, Bath Ankylosing Spondylitis Disease Activity Index; BASFI, Bath Ankylosing Spondylitis Functional Index; BMI, basal metabolic index; n, number of pts; SD, standard deviation; WP, work productivity; years, yrs

Conclusion. There was a substantial impact on work participation for axSpA pts, despite numerous available therapeutic options. Pts with impaired work participation reported increased fatigue, longer duration of morning stiffness, decreased functional capacity, female sex and lower level of education.

P18

SELF-MONITORING OF DISEASE ACTIVITY BY SMARTPHONE APP IN PATIENTS WITH AXIAL SPONDYLOARTHRITIS

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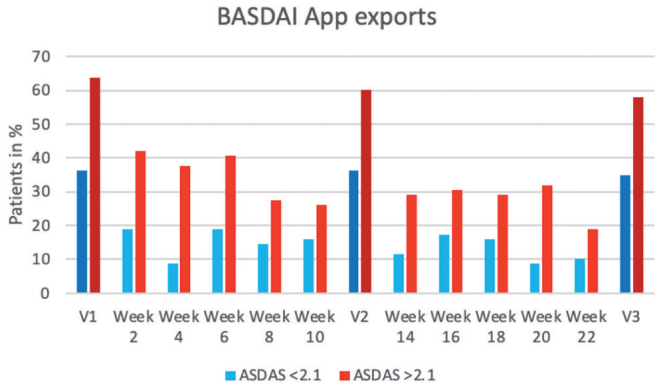
Introduction. Assessment and monitoring of disease activity and functioning is of major importance for the course of axial spondyloarthritis (axSpA). The aim of this study was to investigate the use of a health app and the adherence to it in patients with axSpA with respect to feasibility, usability and equivalence of data in routine clinical management over a period of 6 months.
Methods. AxSpA patients were consecutively included and were asked to regularly submit the patient-reported outcome scores (ePROs) BASDAI and BASFI electronically by using the AxSpA Live App every 2 weeks until week 24. In a face to face meeting at week 12 and 24, patients were asked to complete the Mobile App Rating Scale (MARS) and the System Usability Scale (SUS). The level of adherence to the app was defined as an export of at least 4/5 BASDAI scores within 12 weeks.
Results. Out of 103 axSpA patients asked, 69 agreed to participate (mean age 41.5±11.3 years, 58% male, 76.8% use of bDMARDs, mean BASDAI 4.3±2.0). Proportion of patients with high disease activity who exported the BASDAI score digitally on a regular basis decreased from 40% to 30% between weeks 12 and 24 (Fig. 1). 20 (29%) patients were classified as adherent users at week 12. There was a trend that patients of older age and/or high disease activity transmitted scores more often. No difference between BASDAI scores documented on paper or by app was noted (ICC 0.99 (95%CI 0.98 – 0.99). The performance of the app was rated with mean MARS and SUS scores of 3.6 and 71.2, respectively.
Conclusions. The collection of axSpA related ePROs by health app was feasible but adherence was poor. Current disease activity and age had an influence on the frequency of reporting.



P18. Fig. 1. Number of patients with export of BASDAI scores (light colour) and visit attendance (dark colour) stratified by disease activity

P18. Table I. Clinical characteristics of app-adherent and non-app-adherent patients.

	adherent (n=20)	non-adherent (n=49)	Significance
Age, years	46,1 ± 10,6*	39,6 ± 11,2	**<0.05**
Male, n (%)	12 (60%)	28 (57,1%)	0,827
BASFI V1	4,8 ± 2,5	3,4 ± 2,4	0,066
ASDAS > 2,1, n (%)	17 (85%)	27 (55,1%)	**<0.05**
Frequent use of electronic media, n (%)	19 (95%)	43 (87,8%)	0,366
Previous use of health apps, n (%)	10 (50%)	25 (51%)	0,939
University education, n (%)	4 (20%)	11 (22,4%)	0,823
Biologic DMARD therapy, n (%)	11 (55%)	42 (85,7%)	**<0.05**
NSAID Score	31,8 ± 36,2	15,8 ± 27,2	**<0.05**
Elevated CRP, n (%)	11 (55%)	13 (26%)	**<0.05**

P19

IMPACT OF COVID-19 PANDEMIC IN OVERALL HEALTH AND FUNCTIONING IN PATIENTS WITH AXIAL SPONDYLOARTHRITIS: RESULTS FROM THE REUMAVID STUDY (PHASE 1)

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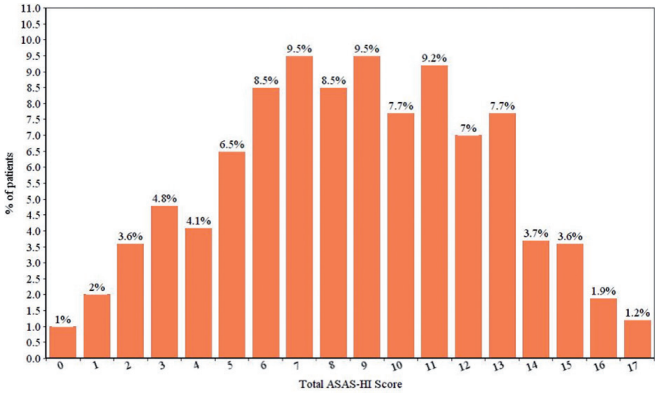
Background. Evidence on the impact of the COVID-19 pandemic on the overall health and functioning in patients with axial spondyloarthritis (axSpA) is scarce.
Aim. To analyse the impact of the COVID-19 pandemic on the overall health and functioning in patients with axSpA.
Methods. Data from axSpA patients participating in the first phase of the REUMAVID study were analysed. REUMAVID is a cross-sectional, observational study collecting data through an online questionnaire of unselected patients with rheumatic and musculoskeletal diseases (RMDs), recruited by patient organizations. The survey was disseminated during the beginning of the COVID-19 pandemic (April-July 2020) in seven European countries (Cyprus, France, Greece, Italy, Portugal, Spain, and the United Kingdom). Patients with axSpA who completed the ASAS health index (ASAS-HI) questionnaire were included in this analysis. Descriptive analyses were used to present socio-demographic and clinical characteristics, as well as daily habits. Overall health and functioning were defined according to the ASAS-HI (0-17), as follows: good health (ASAS-HI ≤5), acceptable health (ASAS-HI 6-11), and poor health (ASAS-HI ≥12). As secondary outcomes, well-being (WHO-5), self-perceived health status, and HADS for anxiety and depression were assessed.
Results. Out of 670 axSpA patients, 587 (87.6%) completed ASAS-HI. Of these, 70.4% were female, 72.6% were married or in a relationship, 46.7% had university studies and 37.6% were currently employed. Mean age was 49.9±12.8 years and mean BMI was 26.7±5.5. Regarding extraarticular manifestations, 13.6% had psoriasis, 12.1% inflammatory bowel disease and 18.7% uveitis. According to the ASAS-HI, 25.0 % of patients were classified as having poor health, with the most affected aspects being pain (92.0%), movement (86.5%), maintenance of body position (80.6%), energy (79.0%) and sleep (75.3%). Regarding self-perceived health status, 14% reported their health status as "bad" or "very bad", and 46.8% reported worsening health during the pandemic (Table I). A distribution of the results of the total ASAS-HI scores can be seen in Fig. 1.

P19. Table I. Overall health and well-being, disease activity, and mental health.

Primary Outcome (ASAS-HI)	Mean ± SD or n (%)
ASAS-HI (0-17), n=587	8.6 (±3.9)
ASAS-HI	
<12 (good or acceptable health)	440 (75.0)
≥12 (poor health)	147 (25.0)
Secondary Outcomes	
WHO-5	
WHO-5, (0-100), n=584	46.3 (±23.1)
WHO- 5 Poor wellbeing WHO- ≤50	330 (56.5)
Self-perceived health status, n=585	
Very good	33 (5.6)
Good	214 (36.6)
Fair	256 (43.8)
Bad	69 (11.8)
Very bad	13 (2.2)
Change in health status during lockdown, n=587	
Much worse than before	54 (9.2)
Moderately worse	220 (37.6)
Same as before	270 (46.0)
Moderately better	35 (6.0)
Much better than before	6 (1.0)
HADS	
HADS Anxiety (0-21), n=587	8.4 (±4.1)
HADS Anxiety	
No case (0-7)	248 (42.7)
Borderline case (8-10)	151 (26.0)
Case (11-21)	182 (31.3)
HADS Depression (0-21), n=587	7.0 (±4.3)
HADS Depression	
No case (0-7)	329 (56.6)
Borderline case (8-10)	134 (23.1)
Case (11-21)	118 (20.3)



P19. Fig. 1. Distribution of the result of ASAS-HI scores (n=587)

Conclusions. One out of four patients with axSpA reported poor health and functioning according to the ASAS-HI, and almost half of patients reported worse self-perceived health status during the first wave of the COVID-19 pandemic.

P20

PORTRAIT OF A PATIENT WITH AXIAL SPONDYLOARTHRITIS: RESULTS OF AN ONLINE SURVEY OF 233 EMAS PATIENTS OF THE RUSSIAN FEDERATION

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Aim. To describe sociodemographics, burden of disease from the perspective of Russian axSpA patients and their fears and hopes through a holistic approach.
Methods. The European Map of Axial Spondyloarthritis (EMAS) was a cross-sectional on-line survey of unselected patients with self-reported axSpA conducted in 13 European countries. Russian participants were recruited between December 2017 and February 2018 through the Russian Ankylosing Spondylitis Association and an online panel. Socio-demographics and disease characteristics including disease duration and BASDAI were collected. Patient hopes and fears about axSpA and their treatment goals were also assessed by using open-ended questions and the answers categorized through qualitative analysis.
Results. 233 Russian participants were enrolled. The mean age was 36.7±9.1 years, 51.9% were female and over 80% held a university degree. The majority of participants were married (59.7%), while 22.8% were single 15.9% separated and 1.7% widowed. 43% of participants declared a monthly family income of €500 or less. Mean disease duration was 12.4±9.5 years. The average of BASDAI score was 4.93±2.3 which implies that the average disease activity was high. The three most frequent disease-related fears were loss of mobility (33%), loss of independence/disability (20%) and suffering pain (19%). The most frequent hopes were to stop disease progression (33%), to be treated (15%) and that new drugs to fight the disease would be found (13%). The three most important treatment goals were to stop disease progression (47%), to eliminate/reduce pain (46%) and to improve mobility (33%). Nearly three out of five participants had discussed their treatment goals with their physician.
Conclusion. Results from the Russian sample of the EMAS survey show that participants were highly educated, but had low income, which can make it more difficult to have full access to all the therapeutics necessary to improve the health outcomes and quality of life. In general, the fears show that patient's worry about how the disease will affect their ability to function independently. Defining the concerns that are important for patients needs to be considered in order to improve patient-physician communication and shared decision-making on treatment options and goals.

P21

CLINICAL EFFICACY OF ALTERNATIVE TNF INHIBITOR AND SECUKINUMAB BETWEEN PRIMARY NON-RESPONDER AND SECONDARY NON-RESPONDER OF PRIOR TNF INHIBITOR IN ANKYLOSING SPONDYLITIS

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Objective. To compare the drug retention times and clinical efficacy of alternative tumor necrosis factor inhibitors (TNFi) and secukinumab in primary and secondary non-responders with ankylosing spondylitis (AS).
Methods. AS patients treated with biologics and enrolled in the Korean College of Rheumatology BIOlogics registry were examined. Patients who did not respond to previous TNFi treatment were defined as primary and secondary non-responders. Data regarding drug discontinuation and clinical efficacy (BASDAI50, ASDAS <2.1, clinical important/major improvement in ASDAS, and ASAS20/40) were collected after 1 year.
Kaplan-Meier and cox regression analyses were performed to compare drug survival and associated factors.
Logistic regression analyses were conducted to compare the clinical efficacy secukinumab with that of alternative TNFi.
Results. In total, 124 patients (83 receiving alternative TNFi and 41 receiving secukinumab) had biologic changed due to clinical inefficacy. Drug retention rates in the alternative TNFi and secukinumab groups were similar (p=0.096). Subgroup analyses of non-responders to previous anti-TNF monoclonal antibodies or a TNF receptor fusion protein (etanercept) revealed no difference between the alternative TNFi and secukinumab groups. However, subgroup analyses including only secondary non-responders revealed that secukinumab users showed a higher hazard ratio (HR) for drug discontinuation (HR = 3.91, p=0.041). In addition, secukinumab was negatively associated with achieving BASDAI50 or a major improvement in the ASDAS.
Conclusion. Alternative TNFi showed better drug retention and clinical efficacy in AS patients experiencing previous TNFi failure, in secondary non-responder. Therefore, alterative TNFi may be a more suitable treatment for secondary non-responders.

P22

ASSOCIATION BETWEEN INDIVIDUAL AND COUNTRY-LEVEL SOCIOECONOMIC FACTORS AND HEALTH OUTCOMES IN AXIAL AND PERIPHERAL SPONDYLOARTHRITIS: ANALYSIS OF THE ASAS perSpA STUDY

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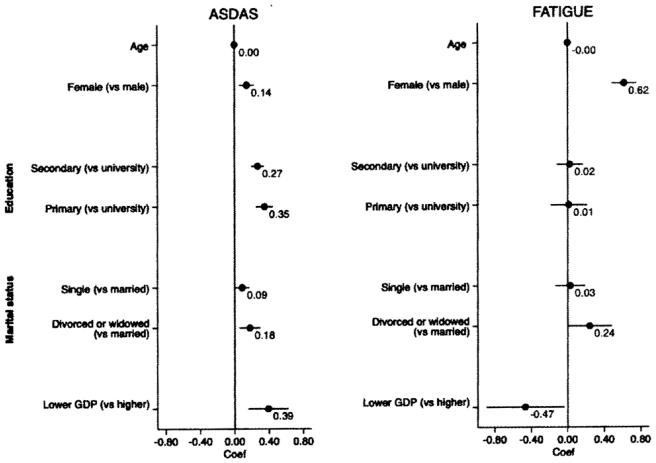
Aim. To investigate associations between individual and country-level socioeconomic (SE) factors and health outcomes across spondyloarthritis (SpA) phenotypes.
Methods. Patients with axSpA, pSpA or PsA from the ASAS-perSpA study were included. The effect of individual (age, gender, education and marital status) and country-level SE factors (*e.g.* Gross Domestic Product [GDP]) on health outcomes (ASDAS≥2.1, ASDAS, BASFI, fatigue and ASAS-HI) was assessed in mixed-effects models, adjusted for potential confounders. Interactions between SE factors and disease phenotype were tested. A mediation analysis was conducted to explore whether the impact of country-level SE factors on ASDAS was mediated through b/tsDMARD uptake.
Results. In total 4185 patients (61% males, mean age 45) from 23 countries were included (65% axSpA, 25% PsA, 10% pSpA). Female gender (β=0.14 (95%CI 0.06-0.23)), lower educational level (0.35 (0.25-0.45)) and single marital status (0.09 (0.01-0.17)) were associated with higher ASDAS. (Fig. 1) Living in lower GDP countries was also associated with higher ASDAS (0.39 (0.16-0.63)) and 7% of this association was mediated by b/tsDMARD uptake. Higher BASFI was associated with female gender, lower education and living alone, without effect of country-level SE factors. Female gender and lower education were associated with worse ASAS-HI, while more fatigue was associated with female gender and paradoxically better country-level SE factors (0.62 (0.48-0.75) and -0.46 (-0.89 to -0.04)). (Fig. 1) No differences across disease phenotype were found.

Conclusions. Our study shows country-driven variations in health outcomes in SpA and independent influence by individual SE factors (worse outcomes in females and lower educated patients), without differences across disease phenotypes. Management of disease outcome in SpA requires also awareness of the role of individual and country level SE-factors.



P22. Fig. 1. Effect of individual and country-level socioeconomic factors on ASDAS and fatigue, derived from multivariable mixed-effects models adjusted by clinical confounders. (ASDAS model: BMI, smoking status, axial involvement, peripheral arthritis, enthesitis, fibromyalgia, NSAIDs; FATIGUE model: BMI, ASDAS, axial involvement, fibromyalgia and cDMARDs).

P23

PERIPHERAL ARTHRITIS AND HIGHER DISEASE ACTIVITY LEAD TO MORE FUNCTIONAL IMPAIRMENT IN AXIAL SPONDYLOARTHRITIS: LONGITUDINAL ANALYSIS FROM ESPAXIA

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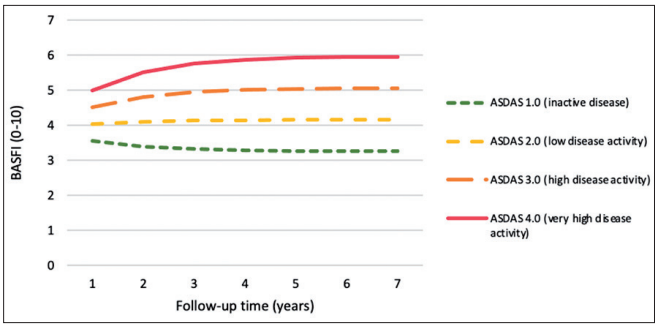
Aim. To investigate whether peripheral arthritis together with disease activity independently contribute to functional impairment over time in patients with axSpA and to evaluate if there are contextual factors modifying this relationship.
Methods. Patients with axial spondyloarthritis from the ESPAXIA cohort were followed-up annually. Physical function was assessed by the self-reported questionnaire BASFI, disease activity by ASDAS and peripheral arthritis was also recorded. The association between BASFI (outcome), peripheral arthritis and ASDAS (main variables of interest) over time was tested in generalized estimating equations (GEE) models. Models were autoregressive, i.e. adjusted for BASFI 1 year earlier, to allow for a truly longitudinal interpretation. Interactions between each of ASDAS and peripheral arthritis with contextual factors were tested.
Results. 185 patients were included (77 % male, mean (SD) age 42 (13) years old and mean disease duration of 9.4 (SD 9.6) years. After a mean of 3.7 (2.4) years of follow-up, ASDAS and peripheral arthritis independently contributed to explaining BASFI changes over time. Contextual factors did not modify either of the relationships. A true longitudinal relation was proved with the autoregressive GEE model, showing that, adjusted for age, gender, spinal mobility and use of NSAIDs, an increase of one ASDAS unit led to a BASFI 0.48 units higher (ß 0.48 [95% CI 0.39-0.57]), and the presence of peripheral arthritis, to a BASFI 0.44 units higher (ß 0.44 [0.08-0.8]) (Table I). A gradient was found for ASDAS disease activity states: ASDAS low disease activity (vs ASDAS inactive disease) with an increase in BASFI of 0.67 (0.35-0.98) units compared to ASDAS very high disease activity (vs ASDAS inactive disease) with a BASFI increase of 2.30 (1.90-2.72) units. (Fig. 1).
Conclusion. Peripheral arthritis and higher disease activity independently lead to more functional impairment in axSpA over time. Contextual factors do not modify these relationships.

P23. Table I. Factors longitudinally associated with BASFI

Assessment	Model with ASDAS continuous ß (95% CI) n=179	Model with ASDAS categorical ß (95% CI) n=179
Previous BASFI (0-10)	0.47 (0.41 to 0.52) †	0.44 (0.39 to 0.50)†
Age (years)	0.007 (-0.005 to 0.02)	0.008 (-0.004 to 0.02)
Male gender (vs female gender)	-0.42 (-0.79 to -0.06) †	-0.38 (-0.74 to -0.02)†
Peripheral arthritis	0.44 (0.08 to 0.80) †	0.38 (0.03 to 0.74) †
ASDAS-CRP	0.48 (0.39 to 0.57) †	-
ASDAS-CRP categorical		
Moderate vs inactive disease	-	0.67 (0.35 to 0.98) †
High vs inactive disease	-	1.70 (1.37 to 2.02) †
Very high vs inactive disease	-	2.30 (1.90 to 2.72) †
BASMI (0-10)	0.32 (0.24 to 0.41) †	0.32 (0.23 to 0.40) †
NSAIDs (%)	0.38 (0.09 to 0.66) †	0.37 (0.09 to 0.64) †

†Significant at $p<0.05$.



P23. Fig, 1. Longitudinal relationship between ASDAS and BASFI
BASFI variation over time assuming a stable disease activity for each different ASDAS level over 7 years. The equation used shows the values from Table 3 for an average patient (male, 42 years old, with peripheral arthritis, BASMI=3.9 and NSAIDs intake): **$BASFI_{time\ point\ t}$ = -0.7 +0.47*$BASFI_{t-1}$ + 0.48*ASDAS-CRP + 0.007*age - 0.42* male + 0.44*peripheral arthritis + 0.32*BASMI + 0.38*NSAIDs.** BASFI, Bath Ankylosing Spondylitis Disease Functional Index; ASDAS-CRP, Ankylosing Spondylitis Disease Activity Score with C-reactive protein. NSAIDs, non-steroidal anti-inflammatory drugs.

P24

PERFORMANCE OF STANDARDIZED SCORES FOR DISEASE ASSESSMENT AND PAIN IN PATIENTS WITH SPONDYLOARTHRITIS AND FIBROMYALGIA

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Aim. To study whether Patient-reported-outcomes (PROs) developed for axial spondyloarthritis (axSpA), psoriatic arthritis (PsA), and related physician-based information behave in a similar way in patients diagnosed with fibromyalgia (FM) without a chronic inflammatory rheumatic disease (CIRD) as in patients with a primary diagnosis of spondyloarthritis (SpA) without or with secondary FM.
Methods. Patients were consecutively recruited. The main inclusion criterion was a clinical diagnosis of FM (without CIRD), axSpA or PsA (without or with secondary FM) and the indication for a treatment adaptation (escalation or change within the same class), based on the judgement of rheumatologists. Standardized assessment tools and lab parameters (BASDAI, ASDAS-CRP, DAPSA, patient´s and global assessment (NRS), CRP, BASFI, Fibromyalgia Impact questionnaire (FIQ), Leeds Enthesitis Index (LEI), Maastricht Ankylosing Spondylitis (MASES) and SpA Research Consortium of Canada (SPARCC) Enthesitis-Score were assessed and compared between subgroups.
Results. The baseline demographics of 300 patients (100 FM, 100 axSpA, 100 PsA) are shown in Table I. All patients with FM (primary or secondary to SpA) showed the highest scores in almost all assessments, and this was independent of the main diagnosis (Table II). In comparison, patients with axSpA or PsA without secondary FM showed significantly lower scores in all PROs compared to those with primary and secondary FM, with exception of (i) scores of ASDAS-CRP and (ii) duration of morning stiffness (Question 6 of BASDAI), which were not affected by the presence of secondary FM (Table II).
Conclusions. Secondary FM is leading to significantly higher levels of SpA-specific scores. ASDAS-CRP was the only score that was not influenced by the presence of secondary FM in patients with axSpA even though it was also increased in patients with primary FM, while similar results were found for the duration but not the level of morning stiffness. On the other hand, FM-specific questionnaires also showed high scores in patients with axSpA and PsA with concomitant FM but not in those without.

P24. Table I. Baseline characteristics of all diagnosis subtypes and comparison (*p-values*) to primary FM diagnosis.

	FM	axSpA-	*p-value*	axSpA+	*p-value*	PsA-	*p-value*	PsA+	*p-value*
Age	56.4±10.2	53.5±14.2	*0.086*	48.7±13.5	*0.026*	56.0±13.2	*<0.001*	58.5±10.4	*0.962*
Male	2%	67%	*<0.001*	0%	---	38%	*<0.001*	6%	*0.322*
HLAB27 pos.	0%	84%	---	71%	---	16%	---	50%	---
CRP (mg/dl)	0.353±0.47	1.09±2.09	*0.001*	0.5±0.3	*0.035*	1.408±3.0	*0.001*	0.5±0.5	*0.031*
NRS pain	7.5±1.6	6.1±2.4	*<0.001*	7.7±1.8	*0.768*	6.4±2.2	*<0.001*	7.3±1.1	*0.223*

'+': diagnosis with concomitant FM, '-': diagnosis without concomitant FM-.

P24. Table II. Mean values (±standard deviation) of the assessed disease-specific indices and comparison (p-values) to primary FM diagnosis.

	FM	axSpA-	*p-value*	axSpA+	*p-value*	PsA-	*p-value*	PsA+	*p-value*
BASDAI	6.9±1.4	5.2±2.0	*<0.001*	6.9±1.4	*0.858*	---	---	---	---
BASDAI									
Q1: Fatigue	7.4±1.9	5.7±2.6	*<0.001*	7.8±1.2	*0.667*	---	---	---	---
ASDAS-CRP	3.3±0.6	3.1±1.0	*0.086*	3.7±1.2	*0.208*	---	---	---	---
BASFI	6.4±2.1	5.4±2.5	*0.005*	7.1±1.8	*0.41*	---	---	---	---
DAPSA	43.0±17.8	---	---	---	---	32.0±18.6	*<0.001*	46.5±19.7	*0.37*
FIQ	68.5±13.5	53.9±21.2	*<0.001*	72.3±13.7	*0.352*	57.2±18.3	*<0.001*	68.5±11.6	*0.978*
LEI	4.0±1.6	1.5±1.7	*<0.001*	3.3±1.4	*0.179*	2.4±2.0	*<0.001*	3.6±2.0	*0.625*
MASES	8.6±3.0	3.4±3.3	*<0.001*	8.2±2.9	*0.642*	4.2±3.6	*<0.001*	7.1±3.6	*0.101*
SPARCC	9.4±3.4	3.5±3.4	*<0.001*	7.7±3.8	*0.139*	5.1±3.7	*<0.001*	8.1±3.9	*0.412*

P25

ASDAS-CRP REMISSION AND LONG-TERM FUNCTIONAL OUTCOMES: A REAL-LIFE ANKYLOSING SPONDYLITIS (AS) COHORT STUDY

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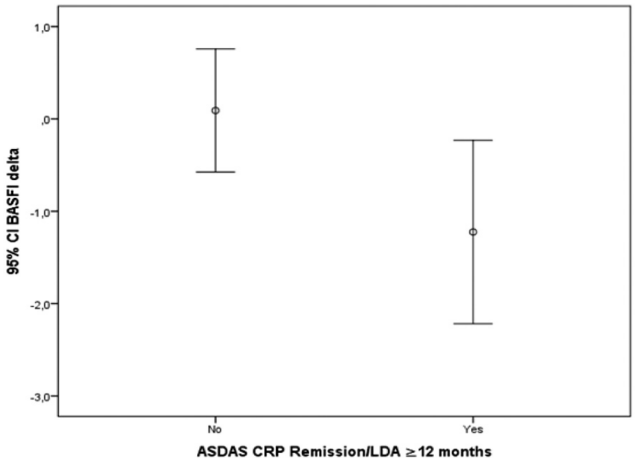
Background. AS leads to back pain and structural damage that may result in functional impairment. Function is usually assessed in clinical trials conducted in developed countries, with patients receiving imunnobiologics.
Objectives. Evaluate variation in BASFI in an AS cohort followed in a developing country, omparing the improvement between patients achieving or not sustained (≥12 months) ASDAS-CRP remission/LDA. Analyze predictors for achieving a minimum clinically important improvement (MCII) in BASFI (ΔBASFI ≤ -0.6)[1].
Methods. Cross-sectional analysis conducted in a retrospective cohort. Adult patients fulfilling the NY criteria and followed during at least 5 years were included. ΔBASFI was described as median (25^{th}/75^{th}). Comparison of ΔBASFI between patients fulfilling or not sustained ASDAS-CRP remisson/LDA was done using the Mann-Whitney test. Hierarchical Poisson model was used to identify predictors for achieving a MCII in BASFI.
Results. 69 patients were analyzed, 53.6% men, mean age 48.9±11.4, and the mean follow-up time was 6.1±0.5 years, median (25^{th}/75^{th}) disease duration of 10 (5-18) years; 14.5% were on immunobiologics at baseline. The median (25^{th}/75^{th}) ΔBASFI was low: -0.1 (-1.9 /+1.1) but 46.4% (N= 32) presented a MCII during follow-up. Patients with sustained ASDAS-CRP remission/LDA had a significant improvement in BASFI (p=0.026) (Fig. 1). Patients with higher BASFI at baseline had a greater probability of achieving a MCII (RR1.13 95%CI 1.00-1.27 *p*=0.047). Achieving and maintaining ASDAS-CRP remission/LDA during at least 12 months increased in 82% the probability to obtain a MCII in BASFI (RR 1.82 95% CI 1.14-2.91, *p*=0.012).
Conclusion. Patients achieving sustained ASDAS-CRP remission/LDA had better functional outcomes. Higher BASFI scores at baseline and sustained ASDAS remission/LDA predicted a MCII in BASFI.



P25. Fig. 1. ΔBASFI and sustained ASDAS-CRP remission/LDA.

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P26

5-YEAR FOLLOW-UP ANALYSIS OF PsA ACTIVITY IN PATIENTS TREATED ACCORDING TO TREAT-TO-TARGET (T2T) STRATEGY AT THE EARLY STAGE

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Introduction. The T2T strategy has been proven to be effective in PsA treatment (1). Nevertheless, the long-term results of using the strategy have not been presented yet.
Aim. To evaluate 5 years (yrs) follow-up of PsA patients (pts) treated according to T2T strategy.
Methods. 37 (M/F–18/19) PsA pts fulfilling CASPAR criteria, mean age 43.3±11.7 yrs, median (Me) PsA duration 72 [60;90] month (mos), who were treated according to T2T at the early stage within 24 mos were analyzed. All pts underwent standard clinical examination at 24 mos and at 5-yrs follow-up. When T2T study was stopped all pts were treated according to the standard care. Me follow-up was 62 [51;81] mos. Comparative analyses of PsA activity by DAPSA were performed at 24 mos and at 5-yrs in two groups based on a therapy: monotherapy (mono) Methotrexate (MTX) (20 pts) and MTX+ biological (b) DMARDs (17 pts). M±SD, Me [Q25; Q75], Manna-Whitney, Wilcoxon tests were performed. All p<0.05, were considered to indicate statistical significance.
Results. At the 24 mos remission by DAPSA were seen in 20 out of 37 (54%) pts. No significant differences were found between groups mono-MTX/MTX+bDMARDs by DAPSA: 2.17 [0.3;21.76]/4.55 [2.59;18.6] accordingly. Among 20 pts who had remission DAPSA at 24 mos 6 pts (30%) remained in remission at 5 yrs follow-up. At 24 mos and 5-yrs follow-up no significant differences were not detected by DAPSA in mono-MTX group: 2.17 [0.3;21.76]/6.23 [0.95;13.9] accordingly and in MTX+bDMARDs: 4.55 [2.59;18.6]/7.67 [2.23;18.8] accordingly.
Conclusions. T2T is useful strategy of PsA at the early stage despite the of type of treatment. Further investigations of the long-term outcomes of T2T strategy in PsA are required.

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P27

RADIOGRAPHIC ENTHESEAL LESIONS AT PELVIC REGION ARE ASSOCIATED WITH LONGER DISEASE DURATION, HIGHER BMI AND MORE SEVERE SPINAL AND HIP RADIOGRAPHIC DAMAGE IN PATIENTS WITH ANKYLOSING SPONDYLITIS

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Background. Ultrasound lesions of peripheral entheses are frequently present in ankylosing spondylitis (AS). Plain radiographs provide good imaging of peripheral enthesopathy. Little is known about the presence of structural entheseal lesions (EL) at the pelvic region in AS.
Objective. To investigate the prevalence of radiographic EL at the pelvic region in AS patients in comparison to controls and to explore the relation with AS patient characteristics.
Methods. 167 AS patients from the GLAS cohort (70% males, mean age 43±11 years) with available anteroposterior (AP) pelvis radiographs at baseline were included. 100 randomly selected AP pelvis radiographs from age and sex matched controls were obtained from radiology department. SI joints were blinded and radiographs were scored by two trained independent observers unaware of patient characteristics and treatment. Entheseal sites scored: trochanter major, trochanter minor, os ischium, crista iliaca, bilateral. Lesions scored: erosion/cortical irregularity, calcification and enthesophyte. Lesions with absolute agreement were reported.
Results. 127 (76%) AS patients and 58 (58%) controls showed EL. AS patients showed significantly more lesions than controls at all locations. Both AS patients and controls showed most lesions at the os ischium (66% vs. 53%, $p<0.05$) and the most prevalent type of lesion was erosion/cortical irregularity (72% vs. 51%, $p<0.005$).
AS patients with radiographic entheseal lesions were significantly older, had longer symptom duration and more radiographic spinal involvement as well as radiographic hip involvement compared to patients without lesions. Patients with BMI >25 showed significantly more enthesophytes.
Conclusion. Radiographic EL at the pelvic region are more prevalent in AS than in age and sex matched controls. AS patients with EL were significantly older, had longer symptom duration and more radiographic spinal damage than patients without EL. These new findings contribute to the knowledge of entheseal involvement in AS.

P28

EVALUATION OF THE FRAMINGHAM RISK SCORE IN PATIENTS WITH PSORIATIC DISEASE IN A MIXED POPULATION

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Introduction. Psoriatic disease has been associated with increased cardiovascular mortality, due to the higher prevalence of traditional cardiovascular risk. The Framingham Risk Score (FRS) has been used to assess long-term risk for cardiovascular disease. The aim was to evaluate the prevalence of CVR factors by the FRS in patients with moderate to severe psoriasis or psoriatic arthritis, comparing to controls matched for age and gender without inflammatory cutaneous or systemic disease.
Methods. A cross-sectional study was performed in three groups of patients: group 1 (41 PsO); group 2 (50 PsA) and group 3 (40 controls). Data on clinical history of all participants such as age, gender, current smoking, use of blood pressure and/or diabetes medications, laboratory parameters such as serum total cholesterol and HDL cholesterol, glucose levels in the years of 2019-2020.The data were applied to an FRS stratification (high >20;10 a 20, intermediate; low<10). A prevalence analysis of CVR was performed.
Results. 45% of 85 psoriatic patients had high CVR. In the PsA group, the risk was high, intermediate and low in 46%, 30%, and 24%, respectively. In the PsO group, the CVR was high, intermediate and low in 45%, 24% and 31% respectively, while in control group CVR was 34%, 25%, and 41%, in-particular.
Conclusion. High CVR was more frequent in the PsA group followed by the PsO group and the last one was the control group. The high CVR was 12% greater in the PsA group than in the control group and 1% higher than PsO group. Estimating CVR is a difficult task and a major challenge in preventing cardiovascular events in the general population and this challenge is much greater in psoriatic disease, a systemic inflammatory disease that needs the holistic treatment in an attempt to prevent and treat cardiovascular events.

P29

PATIENTS' PERSPECTIVES ON PATIENT EDUCATION IN AXIAL SPONDYLOARTHRITIS: A QUALITATIVE STUDY

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Introduction/Aim. Within the EULAR recommendations patient education (PE) is stated as the basis of axial spondyloarthritis (axSpA) management, since PE contributes to reaching treatment goals. However, educational needs are scarcely qualitatively studied in patients with axSpA and EULAR recommendations for PE are primarily based on research in RA. The World Health Organization advocates the incorporation of qualitative research into the development of guidelines and recommendations (1). Therefore, the study aim was to explore experiences and needs of PE in patients with axSpA.
Material and Methods. An interpretive phenomenological approach was used in an iterative design, with semi-structured in-depth interviews with axSpA patients including a broad variation in characteristics. Thematic analysis was applied to translate experiences and needs from the interviews into themes (2). To enhance credibility, data saturation, research triangulation, peer debriefing, member checking, theoretical note keeping and bracketing were applied.
Results. Three interrelated themes regarding PE were identified from 12 interviews: *illness perception, content* and *availability*. *Illness perception* affects how patients experience and process PE which consequently influences coping strategies. Prognosis, treatment, and lifestyle aspects were identified as most important *content* of PE. Regarding *availability*, face-to-face PE is preferred for exploring needs, supplemented by self-education which can be freely applied. In addition, sufficient time and a comprehensible amount of information were conveyed to be important. Participants reported a *trusting patient-healthcare provider (HCP) relationship* and *collaboration between HCPs* as prerequisites for effective PE.
Conclusion. This first bottom-up qualitative study exploring patients' experiences and needs of PE in axSpA reveals that prognosis, treatment and lifestyle aspects are important topics, and the combination of face-to-face contact and self-education is the preferred modality. Furthermore, it is essential that patients' illness perceptions are taken into account to effectively deliver PE. These results add relevant insights for future PE guidelines in axSpA.

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P30

IMPACT OF DIAGNOSTIC DELAY ON QUALITY-OF-LIFE MEASURES IN AXIAL SPONDYLOARTHRITIS

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Introduction. Delayed diagnosis of axial spondyloarthritis (axSpA) is a growing concern worldwide. There are several factors, at the system-level, diagnostic-level and individual-level, that exacerbate delays in diagnosis. However, it is still unclear exactly how diagnostic delay impacts patient quality-of-life (QoL). This study aims to investigate longitudinally: 1) the factors contributing to Short Form-36 (SF-36) physical and mental scores, and 2) how diagnostic delay impacts SF-36 physical and mental scores.
Methods. A dataset of 1,116 axSpA patients, taking all hospital visits for each patient into account, was utilized. Baseline characteristics were assessed using Spearman correlation, unpaired two-sample Wilcoxon rank sum test, and Kruskal-Wallis test. A threshold-adjusted retrospective regression analysis incorporating linear mixed-effects models was conducted.
Results. SF-36 physical scores significantly correlated with age, diagnostic delay, BASDAI, BASFI, ESR, CRP and BMI. Physical scores were significantly different by sex, ethnicity, employment status, smoking status, education status, HLA-B27 status, rural vs urban settings, and multimorbid status. Regression analysis revealed that physical scores were influenced by baseline scores, BASDAI, BASFI, and multimorbidity. A threshold effect of diagnostic delay was observed at 27 years. Meanwhile, SF-36 mental scores significantly correlated

with BASDAI, BASFI and physical score. Mental scores were also significantly different by employment status, smoking status, and multimorbid status. Regression analysis revealed that mental scores were influenced by baseline scores, BASDAI, and psoriasis. A threshold effect of diagnostic delay was observed at 18 years.
Conclusions. This study demonstrates which factors are most crucial to improve upon when considering patient-reported outcomes longitudinally. Furthermore, there appears to be a threshold effect of diagnostic delay on QoL measures. This indicates that over time, diagnostic delay impedes physical and mental scores but only after diagnostic delay has reached 27 or 18 years, respectively. This sheds important insights on how to best utilize clinical and economic resources to mitigate the burden of diagnostic delay.

P31

RADIOGRAPHIC PROGRESSION OF SACROILIAC JOINTS IN EARLY AXIAL SPONDYLOARTHRITIS DOES NOT DEPEND ON DISEASE ACTIVITY AND PATIENT GENDER

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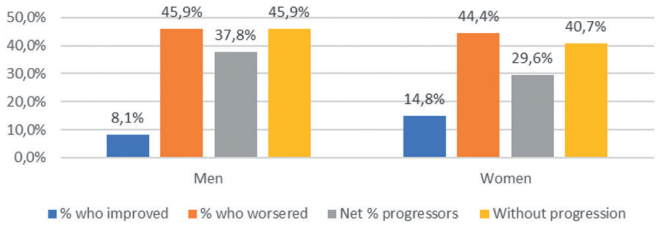
Introduction. It is known that in early axial spondyloarthritis (axSpA) progression in the sacroiliac joints (SIJ) is associated HLA B27 and active sacroiliitis according to MRI and less often in women.
Aim. To assess the radiographic progression of SIJ in men and women with early axSpA.
Material and Methods. The analysis included 64 patients with early axSpA (ASAS criteria, 2009 with disease duration less than 5 years) from the Moscow CORSAR cohort, followed up for at least 3 years. Progression was assessed using the difference in the sum of stages of X-ray sacroiliitis (X-SIJ) in the right and left SIJ (0-8) at baseline and after 3 years of follow-up (Δ X-SIJ). The % of patients were calculated: who worsened (plus at least 1 or more Δ X-SIJ), who improved (minus at least 1 or more Δ X-SIJ), net progressors (worsened minus improved) and without progression (Δ X-SIJ = 0).
Results. Among 64 patients with early axSpA, the number of men was 37 (57.8%), women - 27 (42.2%). For 3 years median [25‰; 75‰] ΔX-SIJ in men was 0 [0; 1], women - 0 [0; 2], p>0.05. When assessing the progression of Δ X-SIJ over 3 years, there was no significant difference between the % of patients who improved who worsened, net progressors and without progression (Fig. 1).
Conclusion. Radiographic progression of SIJ in patients with early axSpA does not depend on disease activity and patient gender.



P31. Fig. 1. Progression of Δ X-SIJ in men and women with early axSpA over 3 years of follow-up (n=64).

According to the disease activity, men with early axSpA showed a higher level of CRP at baseline, women had higher levels of BASDAI and ASDAS CRP after 3 years (Table I).

P31. Table I. Disease activity in men and women with early axSpA over 3 years of follow-up.

	Men (n=37)	Women (n=27)	p
CRP at baseline, Me [25‰; 75‰], мг/л	12.4 [1; 46.6]	4.3 [1.3; 10.6]	**0.01**
CRP after 3 years, Me [25‰; 75‰], мг/л	2.0 [0.6; 4.5]	1.8 [0.7; 4.3]	>0.05
ASDAS CRP at baseline, Mean (SD)	2.4 (1.2)	2.3 (1.0)	>0.05
ASDAS CRP after 3 years, Mean (SD)	1.3 (0.7)	2.0(1.6)	**0.02**
BASDAI at baseline, Mean (SD)	3.0 (1.7)	3.7 (1.7)	>0.05
BASDAI after 3 year, Mean (SD)	1.8 (1.7)	2.7 (1.9)	**0.03**

P32

REMISSION IN PATIENTS WITH EARLY AXIAL SPONDYLOARTHRITIS FROM THE CORSAR COHORT DURING 3 YEARS OF FOLLOW-UP

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Introduction. According to T2T strategy in spondyloarthritis, a major target should be clinical remission or inactive disease. Although remission is not defined here, it can be defined as the absence of clinical and laboratory evidence of significant inflammatory disease activity (1).
Aim. to evaluate the frequency of remission in patients with early axial spondyloarthritis (axSpA).
Methods. The analysis included 64 patients with early axSpA (ASAS criteria, 2009 with disease duration < 5 years) from the Moscow CORSAR cohort, followed up for at least 3 years. Russian expert group of spondyloarthritis formulated the definitions of a clinical laboratory (CLR) (absence of clinical manifestations of the disease persisting for 6 months or more with a normal level of CRP and ESR), an MRI (absence of active lesions of inflammation in the spine and SIJ according to MRI) and full remissions (FR) (clinical laboratory and MRI remissions) (2). In the research we analyzed FR.
Results. On the 3rd year of follow-up among 64 patients: 10 (15,6%) patients in FR and 19 (21,8%) patients in CLR (absence of clinical manifestations with active sacroiliitis on SIJ MRI). Patients in FR mostly males, HLA B27 positive, with AS diagnosis and 4 patients without any treatment (Table I).
Conclusion. On the 3rd year of follow-up, there were 15,6% patients in FR among the total of 64.

P32. Table I. Characteristics of patients with axSpA in TR at 3 years of follow-up.

	TR (n=10)
Age, mean ± SD years	28,5 ± 4,0
Sex, no. (%) male	8 (80%)
No. (%) HLA–B27 positive	10 (100%)
AS, n, %	9 (90%)
Non-radiographic axSpA, n, %	1 (10%)
TNF inhibitors, n, %	3 (30%)
NSAIDs, n, %	3 (30%)
Without therapy, n, %	4 (40%)

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P33

IMPROVEMENT IN QUALITY OF LIFE WITH SECUKINUMAB TREATMENT IN ANKYLOSING SPONDYLITIS – DATA FROM THE RHEUMATIC DISEASES PORTUGUESE REGISTRY (REUMA.PT)

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Aim. To analyze quality of life (QoL) in ankylosing spondylitis (AS) patients who initiated secukinumab.
Methods. This registry-based analysis included all Portuguese adult patients diagnosed with AS, registered in the Rheumatic Diseases Portuguese Registry (Reuma.pt). We collected and analyzed data on the Ankylosing Spondylitis QoL questionnaire (ASQoL), Euro-QoL-5-3Levels dimensions (EQ-5D-3L) and Short-Form 36 (SF-36) at baseline and 3, 6, 12 and 18 months after secukinumab initiation, between January 2017 and 2021.

P33. Table I. Baseline patient and disease characteristics.

	Overall n=168
Age in years, mean (SD)	46.9 (11.3)
Gender (male), n (%)	88 (52.4)
Ethnicity, Caucasian/European origin, n (%)	108 (95.6)
BMI in kg/m^2, mean (SD)	25.5 (3.8)
Current smokers, n (%)	35 (30.2)
Employment status, full time, n (%)	93 (93.0)
HLA-B27, n (%)	87 (77.0)
Age at disease beginning, mean (SD)	28.3 (10.4)
Disease duration, mean (SD)	
Age at beginning of secukinumab treatment in years, mean (SD)	45.1 (11.3)
Disease duration until secukinumab treatment in years, mean (SD)	17.3 (11.2)
Naïve patients, n (%)	46 (27.4)
BASDAI, mean (SD)	5.8 (2.1)
ASDAS-PCR, mean (SD)	3.5 (0.93)
Extra-articular manifestations	
Psoriasis, n (%)	12 (7.1)
Uveitis, n (%)	19 (11.3)
IBD, n (%)	3 (1.8)
Co-medications	
NSAIDs, n (%)	51 (30.4)
csDMARDS, n (%)	56 (33.3)
Oral steroids, n (%)	34 (20.2)
BASDAI, mean (SD)	5.8 (2.1)
ASDAS-PCR, mean (SD)	3.5 (0.93)

BMI, Body mass index; IBD, Inflammatory bowel disease; NSAIDs, Non-steroidal anti-inflammatory drugs; csDMARDs, conventional synthetic disease modifying drugs; BASDAI, Bath Ankylosing Spondylitis Disease Activity Index, ASDAS-CRP, Ankylosing Spondylitis Disease Activity Score C-Reactive Protein.
Sample size is not constant: ethnicity (n=113); BMI (n=86); Smoking (n=116); Employment status (n=100); HLA-B27 (n=113); Age at disease beginning (n=123); Disease duration (n=123); Disease duration until treatment with secukinumab (n=123); BASDAI (n=139); ASDAS-CRP (n=127)

Results. We included 168 patients with AS, who were treated with secukinumab as first-, second- or third-line biologic treatment. Overall, 52.4% were men and mean age was 46.9 (SD 11.3) years, with a mean disease duration of 17.2 (SD 11.3) years when secukinumab was started. In 27.4% secukinumab was the first biologic. Baseline characteristics of the studied cohort are shown in Table I. When we evaluate QoL, a significantly ASQoL improvement was seen at 3 months, and was sustained until 18 months (Table II). EQ-5D-3L utility score also improved early in the course of secukinumab treatment (3 months) and across all study duration. On the other hand, mean EQ Visual Analogue Scale (VAS) only changed significantly at 12 months of secukinumab treatment (Table II). Mean SF-36 scores, of different physical and mental domains, were significantly better in different study time points, except for vitality, that didn't improve over time. Bodily pain and role limitations due to physical problems were consistently better across all study duration, and general mental health and role limitations due to mental problems were also better from 3 to 12 months of study follow-up. Mean physical and mental summary scores were significantly better in all study evaluations (Table II).
Conclusions. In this real-world cohort, secukinumab treatment in AS patients led to an early and sustained improvement in physical and mental domains of QoL.

Acknowledgement. The authors would like to thank all contributing authors: Garcia S., Nero P., Pestana J., Martins-Martinho J, Silva A.B., Rodrigues J., Sequeira G., Costa E., Santos F.C., Furtado C., Santos B., Raposo A., Saraiva L., Samões B., Barcelos F., Santos M.J.
This study was supported by an unrestricted grant from Novartis.

P34

COMPARISON OF HEALTH-RELATED QUALITY OF LIFE IN SPONDYLOARTHRITIS AND LOW BACK PAIN PATIENTS – RESULTS FROM A POPULATION-BASED STUDY

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Aim. To compare health-related quality of life (HRQoL) in patients with spondyloarthritis (SpA), chronic low back pain (CLBP) and with adults with no rheumatic disease (noRMD).
Methods. Data from EpiReumaPt, a national health survey with 10 661 adult participants, screened for rheumatic diseases was used. Subjects were asked about socio-demographic data, lifestyle habits, chronic non-communicable diseases and HRQoL. SpA diagnosis was based by a positive expert opinion (rheumatologist) combined with predefined criteria. No RMD was also established by expert opinion.
Results. We included 92 SpA, 1376 CLBP and 679 participants with noRMD. SpA and CLBP had similar HRQoL reflected by EQ5D-3L index (β=-0.03, [95% CI -0.08; 0.03]; p-value=0.33) but much lower HRQoL when compared to adults noRMD (β=-0.141, [95%CI -0.186; -0.1]; *p*-value<0.001) (Table I). Patients with SpA reported problems in all EQ-5D dimensions and the proportion of patients reporting problems was similar in patients with CLBP but much higher than in participants noRMD. Pain, reported in almost 60% of SpA adults, followed by problems in mobility, where most commonly reported. Problems in usual activities, anxiety/depression and problems in self-care also appeared in a higher proportion in SpA and LBP adults, compared to adults noRMD (Table II). In our cohort, SpA adults showed similar individual perception of health than adults with CLBP by EQ VAS (β=0.195, [95% CI -3.883; 4.273]; *p*-value=0.925), but that perception was much lower (higher score=better health) when compared to adults noRMD (β=-7.488, [95% CI -11.2; -3.78]; *p*-value=<0.001) (Table I).
Conclusions. In this population-based study, SpA and CLBP reported similar disturbances in all domains of the HRQoL namely mobility, self-care, activities, pain and mental health. The individual perception of health of SpA patients is lower than adults noRMD. Pain was present in a high proportion of SpA patients and should be given particular attention in the management of these patients.

P33. Table II. Quality of life assessments after secukinumab initiation.

	Baseline	3 months	*p* value*	6 months	*p* value*	12 months	*p* value*	18 months	*p* value*
ASQoL	11.2 (5.2)	9.9 (5.9)	**0.002**	8.5 (5.9)	**<0.001**	6.9 (5.7)	**<0.001**	5.7 (5.3)	**0.002**
EQ-5D index value, median (IQR)	0.27 (0.26)	0.39 (0.26)	**0.008**	0.41 (0.3)	**0.007**	0.50 (0.27)	**0.001**	0.59 (0.31)	**0.025**
EQ VAS, median (IQR)	48.2 (24.4)	47.5 (23.8)	0.253	52.0 (23.4)	0.117	58.3 (20.4)	**0.020**	53.9 (24.7)	0.585
SF-36									
Physical functioning, mean (SD)	37.8 (20.3)	42.1 (26.0)	0.15	48.7 (29.3)	**0.004**	52.7 (31.1)	**0.001**	59.1 (26.2)	**0.006**
Role limitations due to physical problems, mean (SD)	23.6 (29.7)	40.9 (31.2)	**<0.001**	44.1 (36.3)	**<0.001**	58.9 (38.0)	**0.001**	64.6 (37.1)	**0.001**
Bodily Pain, mean (SD)	28.5 (19.5)	39.8 (27.6)	**0.002**	38.8 (26.6)	**<0.001**	50.6 (23.6)	**<0.001**	48.7 (21.8)	**0.005**
General health, mean (SD)	32.4 (15.0)	35.6 (19.7)	0.120	34.8 (20.5)	**0.008**	38.9 (19.9)	**0.002**	42.7 (21.5)	0.530
Vitality/Energy/fatigue, mean (SD)	10.1 (17.5)	42.1 (18.1)	0.232	43.5 (20.1)	0.113	49.3 (22.6)	0.122	51.7 (23.9)	0.273
Social functioning, mean (SD)	48.4 (21.4)	60.4 (24.2)	**<0.001**	60.1 (30.2)	**0.008**	66.3 (25.9)	**<0.001**	70.2 (27.8)	0.130
Role limitations due to emotional problems, mean (SD)	43.8 (41.1)	61.7 (33.2)	**0.004**	60.8 (41.8)	**0.005**	66.7 (35.7)	**0.004**	73.0 (32.0)	0.147
General mental health, mean (SD)	54.7 (21.9)	65.4 (23.9)	**<0.001**	60.5 (26.6)	**0.002**	65.8 (24.6)	**0.001**	64.6 (25.8)	**0.105**
SF-36 PCS, mean (SD)	28.7 (16.0)	40.2 (21.3)	**<0.001**	42.9 (24.6)	**<0.001**	51.2 (25.3)	**<0.001**	51.6 (24.0)	**<0.001**
SF-36 MCS, mean (SD)	43.9 (19.0)	57.7 (21.0)	**<0.001**	58.0 (25.3)	**< 0.001**	65.7 (25.2)	**<0.001**	64.3 (25.3)	**0.022**

**p* value - Comparisons across different timepoints and baseline
ASQoL, Ankylosing spondylitis quality of life questionnaire; EQ-5D, Euro Quality-of-Life – 5 dimensions; EQ VAS, Euro Quality-of-Life Visual analogue scale; SF-36, Short-Form 36; PCS, Physical component summary; MCS, Mental component summary
Sample size is not constant: Baseline: ASQoL (n=51); EQ-5D (n=48); SF-36 (n=55); 3 months: ASQoL (n=35); EQ-5D (n=35); SF-36 (n=33); 6 months: ASQoL (n=38); EQ-5D (n=34); SF-36 (n=37); 12 months: ASQoL (n=27); EQ-5D (n=26); SF-36 (n=26); 18 months: ASQoL (n=23); EQ-5D

P34. Table I. Comparison of Quality of life by EQ-5D index and EQ VAS between participants with spondyloarthritis, low back pain and with no rheumatic diseases

	SpA n=92	CLBP n=1376	noRMD n=679	Adjusted *p*-value[a] SpA vs LBP	Adjusted p-value[b] SpA vs WRD
EQ-5D index (mean ± sd)	0.69±0.25	0.66±0.27	0.86±0.21	0.33	<<0.001
EQ VAS (mean ± sd)	65.28±18.1	60.92±19.86	75.69±17.64	0.925	<<0.001

SpA – Spondyloarthritis; LBP - low back pain; noRMD - no rheumatic disease.
[a]adjusted for gender, age-group, NUTII, education level, employment status, body mass index category and number of noncommunicable Diseases
[b]adjusted for gender, age-group, NUTII, marital status and number of noncommunicable.

P34. Table II. EQ-5D domains in participants with spondyloarthritis, low back pain and with no rheumatic diseases

	SpA n=92	LBP n=1376	noRMD n=679
EQ-5D domains			
Mobility			
No problems	63 (68.48%)	849 (61.7%)	613 (90.41%)
Some problems	29 (31.52%)	522 (37.94%)	65 (9.59%)
Extreme problems	0 (0%)	5 (0.36%)	0 (0%)
Self-care			
No problems	82 (89.13%)	1156 (84.13%)	659 (97.2%)
Some problems	10 (10.87%)	211 (15.36%)	18 (2.65%)
Extreme problems	0 (0%)	7 (0.51%)	1 (0.15%)
Usual activities			
No problems	63 (68.48%)	927 (67.52%)	615 (90.56%)
Some problems	28 (30.43%)	421 (30.66%)	55 (8.1%)
Extreme problems	1 (1.09%)	25 (1.82%)	9 (1.33%)
Pain / discomfort			
No pain	35 (38.04%)	546 (39.74%)	516 (75.99%)
Moderate pain	54 (58.69%)	730 (53.13%)	154 (22.68%)
Extreme pain	3 (3.26%)	98 (7.13%)	9 (1.33%)
Anxiety / depression			
No problems	65 (70.65%)	958 (70.08%)	557 (82.52%)
Some problems	25 (27.17%)	369 (26.99%)	104 (15.41%)
Extreme problems	2 (2.17%)	40 (2.93%)	14 (2.07%)

SpA: Spondyloarthritis; LBP: low back pain; noRMD: no rheumatic disease.

P35

THE IMPACT OF SOCIOECONOMIC STATUS ON CLINICAL PARAMETERS IN FEMALE PSA PATIENTS

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Background and Aim. Psoriatic arthritis (PsA) is a chronic rheumatic disease associated with inflammatory arthritis and low quality of life. Different social status, which can often be ignored in daily practice, can adversely affect clinical parameters. In this study, it was aimed to investigate the effect of having different social status on the disease parameters in female patients with PsA.
Materials and Methods. Female patients with PsA, enrolled in a cohort created by the multi-centre TRASD-NETWORK in our country and met the CASPAR classification criteria were included in the study. They were divided into three

P35. Table I. Demographic and clinical characteristics of female patients with PsA.

	Married Mean±SD n:545	Single Mean±SD n:58	Widow + divorced Mean±SD n:65	*p*
Age (year)	47,9±11,2	34,7±13,5	53,7±12	***<0,001***
BMI (kg/m^2)	29,5±5,5	26,4±5,5	30,5±4,9	***<0,001***
Education n (%)				***<0,001***
Primary school	401 (74)	15 (26)	47 (72)	
High school	95 (17)	21 (36)	12 (18)	
University	49 (9)	22 (38)	6 (9)	
Smoking status n (%)				*0,267*
Never	381 (70)	41 (71)	38 (58)	
Ex-smoker	55 (10)	6 (10)	12 (18)	
Current smoker	109 (20)	11 (19)	15 (23)	
Peripheral-PsA n (%)				***0,028***
Yes	367 (67)	29 (50)	41 (63)	
No	178 (33)	29 (50)	24 (37)	
Psoriasis n (%)				*0,27*
Yes	443 (81)	49 (84)	48 (74)	
No	102 (19)	9 (16)	17 (26)	
Axial PsA n (%)				*0,368*
Yes	199 (37)	20 (34)	18 (28)	
No	346 (63)	38 (66)	47 (72)	
HLA B-27 (n:218), n (%)				*0,994*
Negative	154 (28)	15 (26)	22 (34)	
Positive	22 (4)	2 (3)	3 (5)	
Duration of PsA, year	5,9±7,1	5±4,8	8,7±9,9	***0,006***
Morning stiffness	38,9±48,8	45±57,6	45,3±42,7	*0,58*
VAS-pain (0-10)	5,1±2,5	4,8±2,7	5,6±2,8	*0,204*
VAS-fatigue (0-10)	5,5±2,7	4,7±3,3	6,4±2,3	***0,004***
PtGA (0-10)	4,9±2,4	4,7±2,6	5,4±2,4	*0,156*
PhGA (0-10)	4,1±2,1	4,1±2,5	4,5±2,1	*0,295*
TJC	8,2±9,5	8±9,8	10,6±12,2	*0,241*
SJC	3,5±4,2	2,3±2,4	4±3,3	*0,377*
BASDAI score	4,2±2,3	4±2,3	4,4±2,4	*0,524*
BASFI score	2,7±2,4	2,6±2,7	3,1±2,5	*0,486*
BASMI score	2±1,8	2,2±2	2,3±1,5	*0,518*
DAS28	3,5±1,2	3,3±1,2	4±1,2	***0,004***
ESH	21,9±14,5	22,2±17,4	27,9±16,3	***0,009***
MASES	3±3,4	2,9±3,4	2,8±3,6	*0,9*
PASI score	2,9±4,9	1,9±2,6	3±4,1	*0,326*
PsAQoL score	8,1±6,4	5,7±5,6	8,7±6,4	***0,018***
HAD Anxiety score	7,5±4,3	6,2±3,2	8,3±4,5	***0,017***
HAD Depression score	7,2±4,4	6,6±3,4	8,2±4	*0,086*
HAQ-DI score	0,5±0,5	0,3±0,5	0,6±0,5	***0,003***

PsA: Psoriatic Arthritis; BMI: Body Mass Index; VAS: Visual Analog Scale; PtGA: Patient Global Assessment; PhGA: Physician Global Assessment; TJC: tender joint count; SJC: swollen joint count; PASI: Psoriasis Area Severity Index; BASDAI: Bath Ankylosing Spondylitis Disease Activity Index; BASFI: Bath Ankylosing Spondylitis Functional Index, BASMI: Bath Ankylosing Spondylitis Metrology Index; DAS-28: Disease Activity Score; ESR: Erythrocyte Sedimentation Rate; MASES: Maastricht Ankylosing Spondylitis Enthesitis Score; PASI: Psoriasis Area Severity Index; PsAQoL: Psoriatic Arthritis Quality of Life; HAD: Hospital Anxiety and Depression; HAQ-DI: Health Assessment Questionnaire-Disability Index.

groups as married (n: 545), single (n: 58) and divorced/widowed (n: 65). Among the recorded demographic and clinical findings, Visual Analogue Scale (VAS) -pain, VAS-fatigue, Health assessment questionnaire (HAQ), Psoriatic arthritis quality of life (PsAQoL), Hospital Anxiety and Depression Scale (HAD), Bath Ankylosing Spondylitis Disease Activity Index (BASDAI)), Bath Ankylosing Spondylitis Functional Index (BASFI), Bath Ankylosing Spondylitis Metrology Index (BASMI), Disease Activity Score-28 (DAS-28); Maastricht Ankylosing Spondylitis Enthesitis Score (MASES) and Psoriasis area severity index (PASI) scores were compared between groups. The SPSS 22.0 program was used to evaluate the statistical analysis. Comparisons between groups were made using Kruskal Wallis-H Test and Chi-square test. (p-value <0.05 was considered significant)

Results. A total of 668 female patients with PsA with a mean age of 47.3±12.2 and a BMI of 29.3±5.4 were included in the study. 81.6% of these patients were married, 8.7% were single and 9.7% were divorced/widowed. Fatigue, duration of illness, ESR, DAS28, PsAQoL score, HAD Anxiety score, HAQ score were significantly higher in divorced/widowed patients (p<0.05). There were no significant difference between groups in peripheral arthritis, enthesitis, spine involvement, morning stiffness, VAS-pain, PtGA, PhGA, TJC, SJC, BASDAI score, BASFI score, BASMI score, MASES scores.

Conclusion. In divorced or widowed patients, anxiety, fatigue, illness activity was higher, and their quality of life was found to be worse. These findings show that the social status of PsA patients should be taken into consideration during their treatment and follow-up.

P36

ASSESSMENT OF THE IMPACT OF THE COVID-19 PANDEMIC FROM THE PERSPECTIVE OF PATIENTS WITH RHEUMATIC DISEASES IN EUROPE: RESULTS FROM REUMAVID (FIRST PHASE)

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Introduction. The COVID-19 pandemic is an unprecedented public health crisis affecting people worldwide, including those with rheumatic and musculoskeletal diseases (RMDs).

P36. Table I. Disease and sociodemographic characteristics of the REUMAVID sample (n=1,800).

Variables	n (%) or mean ± SD
Rheumatic disease	
Axial Spondyloarthritis	670 (37.2)
Rheumatoid Arthritis	534 (29.2)
Osteoarthritis	310 (17.2)
Fibromyalgia	312 (17.3)
Psoriatic Arthritis	165 (9.1)
Osteoporosis	114 (6.3)
Systemic Lupus Erythematosus	97 (5.4)
Sjögren's Syndrome	104 (5.8)
Juvenile Idiopathic Arthritis	38 (2.1)
Gout	36 (2.0)
Peripheral Spondyloarthritis	50 (2.8)
Polymyalgia Rheumatica	13 (0.7)
Systemic Sclerosis (or Scleroderma)	30 (1.7)
Vasculitis or Arteritis	24 (1.3)
Myositis (Polymyositis, Dermatomyositis)	7 (0.4)
SAPHO (only captured in France)	15 (0.8)
Age	52.6 ± 13.2
Gender	
Male	355 (19.7)
Female	1442 (80.1)
Other	3 (0.2)
Educational Level	
No studies	20 (1.1)
Primary school	72 (4.0)
Secondary school	307 (17.1)
Vocational qualification	527 (29.3)
University	662 (36.8)
Master/Doctorate	212 (11.8)

Methods. REUMAVID is an international collaboration led by the Health & Territory Research group at University of Seville, together with a multidisciplinary team including patient organization and rheumatologists. The study consists of an online survey gathering data from patients with a diagnosis of 15 RMDs in Cyprus, France, Greece, Italy, Portugal, Spain and the United Kingdom. Participants are recruited by patient organizations. Data is collected in two phases: during the first peak of the COVID-19 pandemic (from early April to mid-July 2020), and during Spring 2021. This analysis presents descriptive results for the first phase.

Results. 1,800 RMD patients participated. Disease and sociodemographic characteristics are depicted in Table I. In total, 1.1% had tested positive for COVID-19, 10.8 % reported symptoms but were not tested, while 88.1% did not experience any symptoms. Access to care was limited with 58.4% being unable to keep the rheumatologist appointment, of which, 35.2% were cancelled by the provider and 54.4% was attended by phone or online. During the pandemic, 24.6% smoked and 18.2% drank more than before and 54.5% were unable to exercise at home. Indicators of wellbeing and mental health summarized in Table II.

P36. Table II. Wellbeing and mental health status of REUMAVID participants (n=1,800, unless otherwise specified).

Variables	n (%) or mean ± SD
Self-perceived health status (n=1,786)	
Very good	125 (7.0)
Good	519 (29.1)
Fair	802 (44.9)
Bad	293 (16.4)
Very bad	47 (2.6)
Change in health status during lockdown (n=1,786)	
Much worse than before	182 (10.2)
Moderately worse	650 (36.4)
Same as before	843 (47.2)
Moderately better	97 (5.4)
Much better than before	14 (0.8)
Dissatisfaction with health status if prolonged in future months upon lockdown (n=1,421)	743 (52.3)
WHO-5 (0-100) (n=1,777)	50.7 ± 23.9
Poor wellbeing (WHO-5 ≤50)	870 (49.0)
Mental health (n=1,769)	
HADS Anxiety (0-21)	
No case (0-7)	756 (42.7)
Borderline case (8-10)	435 (24.6)
Case (11-21)	578 (32.7)
HADS Depression (0-21)	
No case (0-7)	958 (54.2)
Borderline case (8-10)	438 (24.8)
Case (11-21)	373 (21.1)

Conclusions. Results from the 1st phase of REUMAVID show disturbance of healthcare quality, substantial changes in harmful health behaviours and an unprecedented impairment of mental health in REUMAVID participants. REUMAVID will continue to collect information in order to assess the impact of the COVID-19 pandemic in people affected by RMDs across Europe.

Acknowledgements. This study was funded by Novartis Pharma AG.

P37

DETERMINANTS OF POOR WELLBEING DURING THE COVID-19 PANDEMIC IN PATIENTS WITH RHEUMATIC DISEASES IN EUROPE: RESULTS FROM REUMAVID (FIRST PHASE)

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Introduction. The COVID-19 pandemic has impacted wellbeing of patients with Rheumatic and Musculoskeletal Diseases (RMDs).

Methods. REUMAVID is an international collaboration led by the Health & Territory Research group at the University of Seville, together with a multidisciplinary team including patient organisations and rheumatologists. The study consists of an online survey gathering data from patients with a diagnosis of 15 RMDs in Cyprus, France, Greece, Italy, Portugal, Spain, and the United Kingdom. 1,800 participants were recruited between April and July 2020. Par-

ticipants were divided into: 1) Participants with poor wellbeing (World Health Organization-Five Wellbeing Index (WHO-5) ≤50), 2) Participants with good wellbeing (WHO-5 >50). Mann-Whitney and χ^2 tests were used to analyse relations between sociodemographic characteristics, lifestyle, and outdoor contact with wellbeing during the beginning of the COVID-19 pandemic. Statistically significant variables were introduced in binary logistic regressions in order to determine their impact on poor wellbeing.
Results. 1,777 patients with 15 different RMDs were included. The mean age was 52.7, 80.2% female, 48.7% had a university degree, and 69.7% were married or in a relationship. The most frequent diagnoses were inflammatory arthritis (75.4%). 49.0% reported poor wellbeing. Results for the logistic regressions are depicted in Table I.

P37. Table I. Logistic regressions. Dependent variable: poor wellbeing (n=1,104).

	Univariate logistic analysis		Multivariate logistic analysis	
	OR	95% CI[1]	OR	95% CI[1]
Patient organisation. Non-member	**1.566**	**1.295, 1.894**	**1.505**	**1.176, 1.925**
Disease activity (VAS ≥ 4)	**1.502**	**1.212, 1.863**	1.155	0.854, 1.561
Risk of anxiety (HADs, 0-21)	**1.667**	**1.378, 2.016**	1.203	0.916, 1.581
Risk of depression (HADs, 0-21)	**1.828**	**1.513, 2.209**	**1.492**	**1.117, 1.994**
Self-reported health. Fair to very bad	**1.575**	**1.295, 1.914**	1.256	0.939, 1.679
Change in health status. Worse	**1.273**	**1.056, 1.534**	1.047	0.797, 1.376
Physical activity. No	**1.354**	**1.069, 1.714**	1.076	0.829, 1.397
Talked with rheumatologist during COVID-19 pandemic. No	**1.452**	**1.041, 2.026**	1.044	0.678, 1.610
Walk outside during COVID-19 pandemic. No	**1.474**	**1.187, 1.830**	**1.363**	**1.024, 1.814**
Element in home with outdoor contact. No	**1.930**	**1.423, 2.618**	**2.104**	**1.408, 3.145**

[1]95% CI for test H_0: OR = 1.

Conclusions. Lack of elements in household facilitating outdoor contact, not belonging to a patient organisation, the presence of anxiety, and not walking outside during the pandemic increase the probability of poor well-being. These results highlight the importance of environmental factors and the role of patient organisations in addressing the effects of the pandemic and its containment measures.

Acknowledgements. This study was funded by Novartis Pharma AG.

P38

GENDER DIFFERENCES FROM THE PATIENT PERSPECTIVE ON THE IMPACT OF THE COVID-19 PANDEMIC IN PATIENTS WITH RHEUMATIC DISEASES IN EUROPE: RESULTS FROM REUMAVID (FIRST PHASE)

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Introduction. The COVID-19 pandemic has impacted health, lifestyle, treatment and healthcare of European patients with rheumatic and musculoskeletal diseases (RMDs).
Methods. REUMAVID is an international collaboration led by the Health & Territory Research group at the University of Seville, together with a multidisciplinary team including patient organisations and rheumatologists. The study consists of an online survey gathering data from 1,800 patients with a diagnosis of 15 RMDs recruited by patient organisations in Cyprus, France, Greece, Italy, Portugal, Spain, and the United Kingdom. Data are collected in two phases, the first phase between April and July 2020. Mann-Whitney and χ2 tests were used to analyse differences between gender regarding sociodemographic characteristics, life style, treatment, healthcare, and patient-reported outcomes.
Results. 1,797 patients were included in this analysis. 80.2% were female and a mean age of 52.6 years. The most common diagnosis was inflammatory arthritis, with higher prevalence of fibromyalgia among females. Overall, females reported worse self-perceived health, higher risk of anxiety and depression. Females reported a greater increase in smoking, although they were less likely to drink alcohol, and also engaged less in physical activity. Overall, females were more likely than men to keep their scheduled rheumatology appointment.

P38. Table 1. Bivariate analysis between sociodemographic characteristics, patient-reported outcomes, lifestyle, treatment, healthcare use by gender (n=1,797 unless specified).

		Mean ± SD or n (%)		*p*-value
		Male (n=355)	Female (n=1,442)	
Sociodemographic characteristics				
Disease	Inflammatory arthritis[1]	290 (81.7)	1,064 (73.8)	
	Fibromyalgia	25 (7.0)	287 (19.9)	
	Connective tissue disease[2]	18 (5.1)	195 (13.5)	
	Osteoarthritis	52 (14.6)	255 (17.7)	
	Osteoporosis	10 (2.8)	104 (7.2)	
	Vasculitis[3]	7 (2.0)	29 (2.0)	
	SAPHO (only France)	1 (0.3)	14 (1.0)	
Age, years		52.8 ± 14.2	52.5 ± 12.9	0.896
Educational level	University	162 (45.6)	711 (49.3)	0.215
	Married or in relationship	269 (75.8)	983 (68.2)	0.002*
Marital status				
Member of a Patient organisation, N=1,795	Yes	188 (53.0)	559 (38.8)	<0.001*
Patient-reported outcomes				
HADS Anxiety, n=1,766	Risk	168 (48.1)	843 (59.5)	<0.001*
HADS Depression, n=1,766	Risk	130 (37.2)	680 (48.0)	<0.001*
Wellbeing, n=1,774	WHO ≤ 50	188 (53.4)	681 (47.9)	0.064
Self-perceived health, n=1,783	Fair or bad	182 (51.4)	958 (67.0)	<0.001*
Change in health status during COVID-19 pandemic, n=1,783	Worse	333 (94.1)	1,339 (93.7)	0.799
Life style during COVID-19 pandemic				
Smoking, n=555	More than before	20 (17.5)	117 (26.5)	0.001*
Alcohol consumption, n=1,083	Quit drinking	71 (25.4)	277 (34.5)	0.013
Physical activity, n=1,126	Yes	144 (60.3)	470 (53.0)	0.045*
Treatment and healthcare				
Able to meet rheumatologist, n=721	No	89 (65.9)	332 (56.7)	0.049*
Access to GP, n=688	No	43 (39.4)	248 (42.8)	0.512

[1]Including: Axial Spondyloarthritis, Rheumatoid Arthritis, Psoriatic Arthritis, Juvenile Idiopathic Arthritis, Gout and Peripheral Spondyloarthritis; [2]Including: Systemic Lupus Erythematosus, Sjögren's Syndrome, Systemic Sclerosis and Myositis; [3]Including: Polymyalgia Rheumatic and Vasculitis or Arteritis

Conclusions. The beginning of the COVID-19 and the resulting containment measures have worsened self-perceived health status of patients with RMDs, affecting genders differently. Females reported worse psychological health and life habits such as increased smoking and reduced physical activity, while males increased their alcohol consumption and were less likely to attend their rheumatology appointments.

Acknowledgements. This study was funded by Novartis Pharma AG.

P39

FAMILY HISTORY OF RHEUMATIC DİSEASES IN PATIENTS WITH PSORIATIC ARTHRITIS: A MULTI-INSTITUTIONAL CROSS-SECTIONAL STUDY

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Aim. The goal of this study was to find out how was the frequency of rheumatic disease in families of psoriatic arthritis (PsA) patients, as well as how it affected clinical disease characteristics.
Materials and Methods. A total of 1120 patients with PsA from a multi-institutional national cohort were included. Demographic characteristics and physical examination findings were recorded. The pain and fatigue assessed by means of a visual analogue scale (VAS-p, VAS-f respectively), Health assessment questionnaire (HAQ), Psoriatic arthritis quality of life scale (PsAQoL), Hospital Anxiety and Depression Scale (HAD), Bath Ankylosing Spondylitis Disease Activity Index (BASDAI), Bath Ankylosing Spondylitis Functional Index (BASFI), Bath Ankylosing Spondylitis Metrology Index (BASMI), Disease Activity Score-28

(DAS-28); Maastricht Ankylosing Sponydilitis Enthesitis Score (MASES), The Functional Assessment of Chronic Illness Therapy (FACIT), Fibromyalgia Rapid Screening Tool (FiRST), and Psoriasis Area Severity Index (PASI) scores were compared between patients with and without family history of rheumatic diseases. The SPSS 22.0 pocket program was used for statistical analysis. Inter-group comparisons were made using the Mann Whitney U and chi square tests. p values below 0.05 were considered statistically significant.

Results. The mean age of patients were 46.89±12.23 years and 35.8% of them were men. Of the cohort, 310 (27.7%) patients had family histories of either rheumatoid arthritis, spondyloarthritis, connective tissue diseases (Sjögren's syndrome, systemic lupus erythematosus, systemic sclerosis), familial Mediterranean fever, or Behçet's disease. Of these, 114 (10.2%) had family history in a primary degree relative whereas 196 (17.5%) had history of rheumatic disease in a second or higher degree relative. The patients with family history of rheumatic disease had higher scores of patient's global assessment, VAS-p, VAS-f, tender joint score, MASES, BASDAI, BASFI, FACIT, FIRST, PsAQoL, HAD Anxiety, SF-36-Physical and Mental component scores (p<0.05 for all).

Conclusion. Patients with psoriatic arthritis with family history of rheumatic diseases had higher disease activity as well as lower functionality and quality of life.

P39. Table I. Comparison of PsA patients with and without family history of rheumatic diseases in terms of demographic and clinical characteristics, and disease activity.

	Family history of rheumatic disease		
	No (n:810)	Yes (n:310)	*p*
Age (years)	46.7±12.4	47.4±11.9	*0.428*
BMI (kg/m^2)	28.7±5	29±5	*0.413*
Gender (male) n(%)	298(37)	105(34)	*0.362*
Symptom durations(years)	9.3±9	9.6±8.6	*0.326*
Diagnosis durations (years)	6.4±7.4	6.6±7.1	*0.208*
Diagnostic delay (years)	2.9±4.6	3±4.6	*0.513*
Patient's global assessment (0-10)	4.4±2.5	4.8±2.6	***0.015***
Physician's global assessment (0-10)	3.8±2.2	4.1±2.2	*0.068*
VAS-pain (0-10)	4.6±2.6	5±2.6	***0.012***
VAS-fatigue (0-10)	4.8±2.8	5.5±2.9	***<0.001***
Tender joint score	7.2±8.9	8.8±9.9	***0.011***
Swollen joint score	3.3±3.9	3.5±4.8	*0.784*
ESR	33.3±350.9	24.2±57.5	*0.704*
DAS28	3.3±1.2	3.4±1.2	*0.185*
MASES	2.4±3.1	3.1±3.4	***0.001***
BASDAI score	3.4±2.4	4.1±2.5	***<0.001***
BASMI score	2±1.8	2±1.8	*0.792*
BASFI score	2.5±2.3	2.9±2.6	***0.035***
HAQ-DI score	0.5±0.5	0.6±0.5	*0.449*
FACIT score	18.7±10.7	20.8±10.6	***0.003***
FIRST score	2.3±2.2	2.8±2.2	***0.001***
PASI score	3±4.7	2.9±5.1	*0.54*
PsAQoL score	6.5±6.1	7.8±6.6	***0.004***
SF-36-Physical component score	57.6±23.4	53.2±23.3	***0.004***
SF-36-Mental component score	57±21.6	51.7±21.8	***<0.001***
HAD Ankxiety score	6.5±4.2	7.3±4.2	***0.005***
HAD Depression score	6.6±4.3	7±4	*0.096*

All variables were presented as mean ± Standard Deviation.
BMI, Body Mass Index; VAS, Visual Analog Scale; PtGA, Patient Global Assessment; PhGA, Physician Global Assessment; ESR, Erythrocyte Sedimentation Rate; DAS28, Disease Activity Score 28; BASDAI, Bath Ankylosing Spondylitis Disease Activity Index; BASMI, Bath Ankylosing Spondylitis Disease Metrology Index; BASFI, Bath Ankylosing Spondylitis Disease Functional Index; MASES, Maastricht Ankylosing Sponydilitis Enthesitis Score; HAQ-DI: Health Assessment Questionnaire-Disability Index; FACIT, Functional Assessment of Chronic Illness Therapy; FIRST, Fibromyalgia Rapid Screening Tool; PASI, Psoriasis Area and Severity Index; PsAQoL, Psoriatic Arthritis Quality of Life Questionnaire; SF-36, Short Form 36; HAD, Hospital Anxiety and Depression.

P40

FREQUENCY OF AXIAL SPONDYLOARTHRITIS DIAGNOSIS AMONG PATIENTS WITH CHRONIC LOW BACK PAIN SEEN BY RHEUMATOLOGISTS IN KINSHASA, DEMOCRATIC REPUBLIC OF THE CONGO

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Introduction. Inflammatory back pain is the major symptom in axial spondyloarthritis (axial SpA). The aim of this study was to determine the proportion of patients with axSpA among those with chronic low back pain in Kinshasa, Democratic Republic of The Congo.

Materials and Methods. This is a prospective study conducted at rheumatology practices in the University hospital of Kinshasa from January 2019 to December 2020. Patients were required to have chronic low back pain for 3 months beginning at <45 years of age, no prior SpA diagnosis. The diagnosis of inflammatory back pain was based on Calin, Berlin or ASAS criteria. Axial spondyloarthritis diagnosis was according to clinical diagnosis based on rheumatology experience.

Results. A total of 324 patients (174 males) were enrolled with the symptom of chronic low back pain (average age: 54.5±17.4 years). Among patients with available data, 58 of 324 (17.9%) were diagnosed as having inflammatory back pain. Axial SpA had been diagnosed by the investigator in 47 patients (14.5%) as 30 males and average age 46.5±10.3 years.

Conclusions. Our findings indicate that among patients with chronic low back pain for more than 3 months beginning at ages younger than 45 years in the context were ASAS criterias for axial SpA are not applicable, clinical evaluation is essential in the diagnosis of axial SpA.

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P41

UVEITIS OCCURRENCE IN EARLY INFLAMMATORY BACK PAIN - FIVE YEARS DATA FROM THE PROSPECTIVE FRENCH NATIONWIDE COHORT DESIR

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Introduction. Uveitis is the most frequent extra rheumatological manifestation in axial Spondyloarthritis (SpA). DESIR is a prospective multicenter cohort of patients with early inflammatory back pain suggestive of SpA. We reported previously a 8.5% baseline prevalence of uveitis in the cohort, associated with inflammatory bowel disease (IBD) and preceding infection.

Aim. The aim of the study was to evaluate the prevalence and incidence of uveitis over the first five years of prospective follow-up of the cohort, and to evaluate its associated factors.

Methods. All available factors in the database were compared between patients with and without uveitis at 5 years, by uni and then multivariate analysis. Baseline factors associated with new cases of uveitis occurrence over the 5 years were also analyzed. Significance: p less than 0.05.

Results. After 5 years, 91 patients (out of 480 with complete follow-up) had at least one uveitis episode, estimated prevalence of 18.9% [95%CI: 15.4–22.4], associated (multivariate) with dactylitis (OR 2.92 [2.06–4.14]; p=0.002**), ESR >7mm (median value) (OR 2.19 [1.57–3.06]; p=0.018*). New incident uveitis occurred in 31 cases over 5 years, estimated incidence rate of 1.29 [0.84–1.74] /100 patient-years, associated in multivariate analysis with the following baseline factors: diagnosis of SpA (OR 9.65 [3.21–28.96]; p=0.039*), total sacro iliac MRI inflammatory SPARCC score over median (OR 3.98 [2.26–7] ; p=0.015*), dactylitis (OR 4.7 [2.65–8.36] ; p=0.007**), syndesmophyte score over median (OR 0.22 [0.1–0.45] ; p=0.039*). No significant association was found with HLA-B27, DMARDs, BASDAI, ASDAS, BASFI.

Conclusion. Five-years data of the DESIR cohort allowed an estimation of incidence rate of uveitis of 1.3/100p-y; over five years, uveitis was associated with dactylitis, biologic and sacro iliac MRI inflammation.

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ONE IN TWENTY INFLAMMATORY BOWEL DISEASE PATIENTS WITH INCIDENTAL COMPUTER-TOMOGRAPHIC EVIDENT SACROILIITIS HAVE UNDIAGNOSED AXIAL SPONDYLOARTHRITIS

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Introduction/Aim. To identify what proportion of inflammatory bowel disease (IBD) patients who underwent computer tomographic (CT) abdomen/pelvis for non-musculoskeletal (non-MSK) indications have undiagnosed axial spondyloarthritis (axSpA). In the process, we also explored an imaging strategy for identifying axSpA cases in order to reduce the delay to diagnosis.
Materials and Methods. The study population was selected from a service evaluation exploring reporting standards for sacroiliac joints. CT abdomen/pelvis of verified IBD patients were identified retrospectively from eight years of imaging archive. Patients between 18-55 were selected as having the highest diagnostic yield for axSpA. CT review (using an adapted validated screening tool developed by Chan[1]) was undertaken by three radiology trainees (trained and under supervision of a senior musculoskeletal radiologist) in order to identify coincidental CTSI (iCTSI), highly suggestive of axSpA. All patients identified were sent a screening questionnaire (SQ). Those with chronic back pain, onset <45 years were invited for rheumatological assessment. This included a medical interview, physical examination (joint count, MASES, dactylitis count, BASMI), patient reported outcomes (BASDAI, BASFI, BASGI, Harvey-Bradshaw-Index, Partial-Mayo-Index), relevant laboratory tests (CRP, ESR, HLA-B27), axSpA protocol MRI, and remote review by a panel of expert axSpA rheumatologists.
Results. iCTSI was identified in 60 of 301 patients. Thirty-two (53%) responded to the invitation to participate and 27 (84%) were enrolled. Of these, eight had a pre-existing axSpA diagnosis and five were excluded (no chronic back pain onset less than 45 years). Fourteen patients underwent rheumatological assessment; three (3/14 or 21.4% [95% CI: 4.7%, 50.8%]) had undiagnosed axSpA. A total of eleven (11/27 or 40.7% [95% CI: 22.4%, 61.2%]) patients had a rheumatologist verified diagnosis of axSpA.
Discussion/Conclusion. One in five patients (60/301) with IBD undergoing CT abdomen/pelvis for non-MSK indications have iCTSI and at least one in five (11/60) have axSpA. This highlights the disease burden and a potential strategy for identifying new cases.

Reference

1. CHAN J, SARI I, SALONEN D, INMAN RD, HAROON N: Development of a Screening Tool for the Identification of Sacroiliitis in Computed Tomography Scans of the Abdomen. *J Rheumatol* 2016; 43(9); 1687-94.

P43

EXPERIENCE TO 6 YEARS IN THE MULTIDISCIPLINARY CONSULTATION OF PSORIASIS ARTHROPATHY IN A REFERENCE HOSPITAL

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Introduction. Patients with psoriasis may have articular involvement in 30% of cases. In addition, it is estimated that up to 10-29% of patients with psoriasis who are followed up by Dermatology are underdiagnosed, leading to delayed diagnosis and treatment.
Objective. To describe our experience in the multidisciplinary unit of psoriatic arthritis.
Methods. Descriptive and retrospective study (January 2011-December 2016) of patients with psoriatic arthritis.
Results. In 6 years, we studied 343 patients (56.27% male) with a mean±SD age of 52.65±13.82 years and a weight of 80.35±17.86kg. The derivation by Rheumatology was 57% in the first 3 years and 49.24% in 6 years. The derivation by Dermatology was 46.48% in 6 years. 321 patients (93.59%) presented psoriasis, 199 (58.02%) arthropathy and 55.98% combination of both. The peripheral form was the most frequent (67.86%). The most common type of psoriasis was plaque (78.19%) and scalp location (25%). 52.55% had metabolic syndrome and 52.77% onycopathy. The diagnosis of psoriasis was previous to arthropathy in 76.16% and simultaneous in 15.12%. Previous treatments: topical 84.84%, phototherapy 27.99%, synthetic DMARDs 55.39% (methotrexate: 51.58%) and biological DMARDs 19.83% (etanercept: 57.35%). Treatment was modified in 154 patients (45.16%). TABLE. The indication was cutaneous in 42%, joint affection in 26.67% and both in 28.95%. The increase or decrease in dose was not considered a modification. Joint and cutaneous manifestations evolution was satisfactory in 55.02% of patients and stability was observed in 43.25%. 83.67% of the patients were discharged, with a median follow-up of 4 months [1-14]. Only 6.71% of these patients were referred back to the consultation.

P43. Table I.

TREATMENT	TOTAL	N (%)
PHOTOTHERAPY	65 (42.48%)	
csDMARD	95 (61.70%)	
- acitetrin		1 (1.05%)
- cyclosporine		5 (5.26%)
- methotrexate		67 (70.52%)
- leflunomide		14 (14.73%)
- salazopyrine		8 (8.42%)
DMARDb	50 (26.62%)	
- etanercept		13 (26.00%)
- adalimumab		17 (34.00%)
- infliximab		2 (4.00%)
- ustekinumab		10 (20.00%)
- golimumab		2 (4.00%)
- sekukinumab		3 (6.00%)
- certolizumab		3 (6.00%)
TARGET synthetic	1 (0.65%)	
- apremilast		1 (100%)

Conclusions. In our experience, the joint management Rheumatologist-Dermatologist is beneficial for the patient with psoriatic arthritis and indisputably improves the quality of care. The increase in derivation by Dermatology is remarkable and demonstrate a greater awareness of this specialty in early diagnosis and treatment.

P44

BEING OVERWEIGHT IS ASSOCIATED WITH NOT REACHING LOW DISEASE ACTIVITY IN WOMEN BUT NOT MET WITH PSORIATIC ARTHRITIS

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Introduction. Disease manifestations and outcomes of psoriatic arthritis (PsA) seem to differ between sexes. Gaining knowledge about the underlying mechanisms of these differences between men and women is important to optimize treatment strategies, especially given that women seem to less often reach low disease activity (LDA) treatment targets. The aim of this study was to assess sex differences in disease activity parameters and health-related quality of life in PsA, and to assess whether determinants associated with not reaching treatment target differed between men and women.
Methods. A cross-sectional study was conducted, using data from a routine practice cohort of 855 patients with PsA, that were all tightly monitored and treated. Gender differences with respect to Psoriatic Arthritis Disease Activity Score (PASDAS), skin/nail disease, SF12-PCS, SF12-MCS, inflammatory back-

P44. Table I. Final multivariate logistic regression model of determinants associated with not reaching PASDAS target stratified for gender

	Men (n=465)		Women (n=390)	
Variable	OR (95% CI)	*p*-value	OR (95% CI)	*p*-value
BMI 25-30 kg/m^2 (ref: <25)			3.43 (1.76-6.68)	**<0.001**
BMI 30-35 kg/m^2 (ref: <25)			2.50 (1.17-5.37)	**0.019**
BMI >35 kg/m^2 (ref: <25)			2.41 (1.37-4.23)	**0.002**
Presence of nail disease			1.51 (0.93-2.46)	0.093
Presence of IBP	2.75 (1.13-6.70)	**0.026**	3.36 (1.57-7.20)	**0.002**
MCS (SF12)	0.93 (0.90-0.95)	**<0.001**	0.96 (0.94-0.99)	**0.001**
cDMARD use (ref: no DMARD)	0.60 (0.24-1.49)	0.268	0.40 (0.16-0.99)	**0.047**
bDMARD use (ref: no DMARD)	0.25 (0.09-0.73)	**0.011**	0.35 (0.12-1.09)	0.070
Number of DMARDs history	1.36 (1.17-1.59)	**<0.001**	1.13 (1.01-1.26)	**0.025**
Number of DMARDs current	1.91 (1.12-3.25)	**0.018**	1.54 (0.88-2.68)	0.128

*A *p*-value of <0.05 is considered significant. PASDAS: psoriatic arthritis disease activity score; BMI: body mass index; IBP: inflammatory backpain; SF12-MCS: short form-12 mental component scale; cDMARD: conventional disease-modifying antirheumatic drug; bDMARD: biological DMARD.

pain (IBP), and demographics were assessed. Multivariate analyses were used to examine determinants associated with not reaching PASDAS ≤3.2 (LDA) in men and women.
Results. Women had worse scores for - among others- swollen and tender joints, CRP, enthesitis, and function (all P<0.001). Higher PASDAS scores in women were found than in men, mean 3.5 (SD=1.5) vs 2.7 (SD=1.5), p<0.001. Likewise, women were more often not at PASDAS treatment target (OR = 2.03, p<0.001). Besides being female, also the presence of nail disease and IBP, a higher number of DMARDs used in the past or current number of DMARDs used, and a higher Body Mass Index (BMI) were associated with not reaching the treatment target in the overall sample. No differences in current medication use was found between the sexes. Table 1 shows that for women, but not men, BMI was associated with not reaching PASDAS ≤3.2 (BMI 25-30: OR =3.6, p<0.001; BMI 30-35: OR=2.41, p=0.023; BMI >35: OR=2.45, p=0.002).
Conclusion. Women with PsA in a tightly monitored and treated setting have more severe disease than men. This is demonstrated by worse scores for women in both subjective and objective disease activity measures, in addition to women less often reaching the treatment target. Notably, being overweight is associated with not reaching the treatment target in women, but not men.

P45

EXTRA-ARTICULAR AND EXTRA-SPINAL MANIFESTATIONS IN PATIENTS WITH EARLY AXIAL SPONDYLOARTHRITIS FROM THE CORSAR COHORT DURING 3 YEARS OF FOLLOW-UP, MANAGED ACCORDING TO THE T2T STRATEGY

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Introduction. Currently, there are few studies evaluating the dynamics of extra-articular and extra-spinal manifestations in patients with early axial spondyloarthritis (axSpA).
Aim. To evaluate the dynamics of extra-articular and extra-spinal manifestations in patients with early axSpA managed according to the T2T strategy during 3 years (y.) of follow-up (FUP).
Methods. Currently, the CORSAR (cohort of early axial spondyloarthritis) cohort includes 175 patients with axSpA (ASAS criteria, 2009) with inflammatory back pain duration <5 years. The analysis included 56 patients who were followed for at least 3 y. There were 30 (53.5%) men, patients' mean age was 27.8 (5.8) y., and mean disease duration was 21.2 (16.2) mo, 53 (94.6%) patients were positive for HLA B27. All patients were followed and managed according to the T2T strategy.
Results. At baseline patients with early axSpA had significantly higher counts for arthritis, dactylitis, and enteritis than after 3 y. of FUP. Number of patients with a history of uveitis did not change during the FUP, psoriasis was documented at baseline and in 3 y. in 1 patient only (Table I).

P45. Table I. Extra-articular and extra-spinal manifestations in patients with early axSpA at baseline and after 3 y. FUP (n=56).

Extra-articular and extra-axial manifestations of axSpA	At baseline	At 3 years	p
Peripheral arthritis, n (%)	26 (46,4%)	2 (3,5%)	**<0,05**
SJC, Me [25‰; 75‰]	0 [0; 1,0]	0 [0; 0]	>0,05
Dactylitis, n (%)	6 (10,7%)	0 (0%)	**<0,05**
Enthesitis, n (%)	30 (53,5%)	10 (17,8%)	**<0,05**
Uveitis, n (%)	3 (5,3%)	3 (5,3%)	>0,05
Psoriasis, n (%)	1 (1,8%)	1 (1,8%)	>0,05

Conclusions. Enthesitis and arthritis were the most common extra-spinal manifestations of the early axSpA, which significantly decreased after 3 years of being managed according to the T2T strategy. No new cases of extra-articular axSpA manifestations were registered during 3 years of FUP.

P46

RELATIONSHIP BETWEEN BIOMARKERS AND INDICES OF ANKYLOSING SPONDYLITIS ACTIVITY

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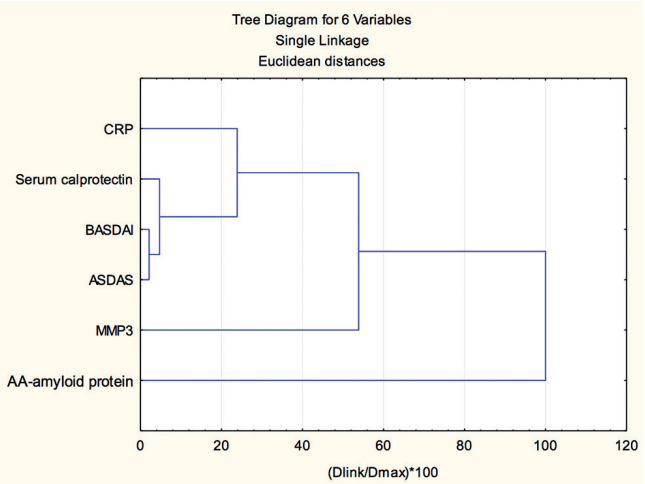
Introduction. Currently several biomarkers of inflammation in ankylosing spondylitis (AS) have been established, including serum calprotectin, MMP3, AA-amyloid protein, and C-reactive protein (CRP). However, the relationship between these biomarkers of inflammation and AS activity indices has not yet been studied.
Aim. To study the relationship between biomarkers and AS activity indices.
Methods. The study included 87 AS patients (modified New York criteria, 1984) undergoing examination at the V.A. Nasonova Research Institute of Rheumatology. The following serum biomarkers were evaluated by enzyme immunoassay: serum calprotectin, MMR3, AA-amyloid protein, and CRP. BASDAI and ASDAS-CRP indices were used to assess AS disease activity. Patients' mean age was 40 (11.1) years, mean disease duration was 16.7 (10.6) months. The study included 60 (69,0%) men, HLA B27 positivity was established in 80 (92,0%) patients. Cluster analysis method based on calculation of Euclidean distance was used to investigate the relationship.
Results. Serum calprotectin showed the strongest association with BASDAI and ASDAS-CRP indices (Euclidean distance <20) (Fig. 1). Weaker relationship was established between BASDAI, ASDAS-CRP indices and CRP levels (Euclidean distance <30) (Fig. 1). Yet weaker was the relationship of activity indices with MMP3 (Euclidean distance <60) and AA-amyloid protein (Euclidean distance <100) (Fig 1).
Conclusions. Out of all biomarkers analyzed the strongest correlation with BASDAI and ASDAS-CRP activity indices was found for serum calprotectin, while correlation of activity indices with CRP and MMR3 was less significant.



P46. Fig. 1. The Euclidean distance between the biomarkers and AS activity indices.

P47

VASPIN IN SUBCLINICAL ATHEROSCLEROSIS AND CARDIOVASCULAR RISK IN AXIAL SPONDYLOARTHRITIS

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Introduction/Aim. Vaspin is an adipokine associated with cardiovascular (CV) disease and inflammation in chronic inflammatory conditions different from axial spondyloarthritis (axSpA). Given the high incidence of CV disease (mainly due to accelerated atherosclerosis) exhibited by axSpA patients, vaspin may also be a key molecule in this process. However, data on the role of vaspin regarding atherosclerotic disease in axSpA is scarce. Thereby, we evaluated the implication of vaspin, at the genetic and serological level, in subclinical atherosclerosis and CV risk in axSpA.
Methods. 510 axSpA patients were included in this study. Carotid ultrasound was performed to evaluate the presence of subclinical atherosclerosis. rs2236242 T/A, rs7159023 G/A and rs35262691 T/C *vaspin* gene variants were genotyped by TaqMan probes. Serum vaspin levels were assessed by ELISA.
Results. Higher vaspin levels were observed in women (p=0.01) and obese patients (p=0.03). rs2236242 minor allele was associated with lower vaspin levels, while rs7159023 minor allele was linked to higher vaspin levels (p<0.05). When the three polymorphisms assessed were combined conforming haplotypes, we disclosed that the TGC haplotype related to high levels of vaspin (p=0.01). No statistically significant association was observed between vaspin and markers of subclinical atherosclerosis, both at the genetic and serological level.
Conclusions. Vaspin is linked to CV risk factors that may influence on the atherosclerotic process in axSpA. Additionally, serum vaspin concentration is genetically modulated in a large cohort of patients with axSpA.

P48

COMPARISON OF THE DISTRIBUTION BY DEPARTMENT OF THE PREVALENCE OF SPONDYLOARTHRITIS AND INFLAMMATORY BOWEL DISEASES IN METROPOLITAN FRANCE AND THEIR EVOLUTION BETWEEN 2008 AND 2018

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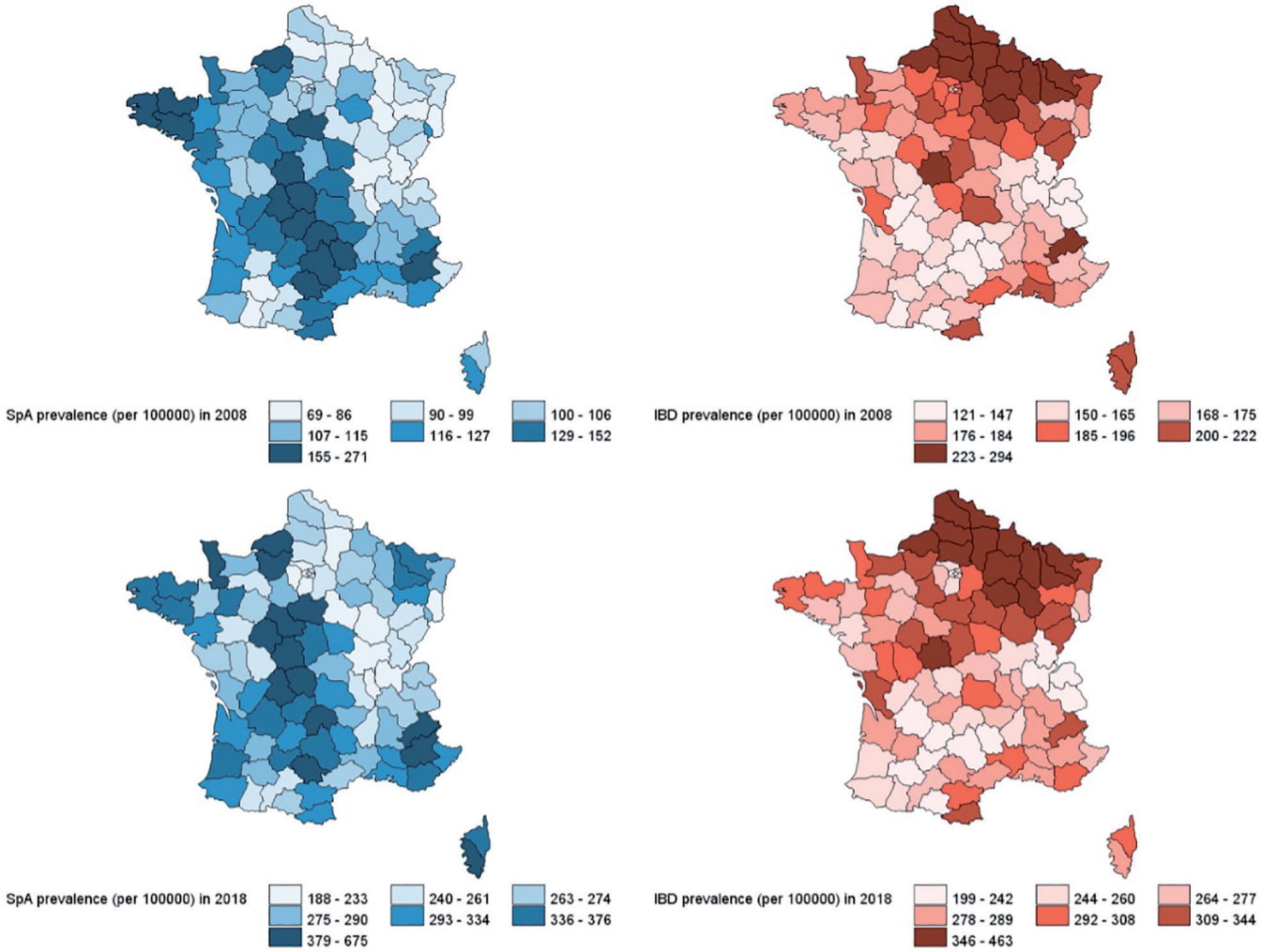
Introduction. Epidemiology of spondyloarthritis (SpA) has been rarely described in France. To our knowledge, there is no data regarding the geographical distribution of SpA in France. Furthermore, it is known that SpA occurs in up to 13% of patients with inflammatory bowel disease (IBD), and that there is a significant north-south gradient in IBD cases in France.
Objectives. To determine the prevalence of SpA and IBD in metropolitan France and compare the geographical distribution of SpA and IBD in 2008 and 2018.
Methods. Age-and sex-standardized prevalences were collected from data freely



P48. Fig. 1.

available on the French national health insurance website concerning patients with long-term disability (LTD) #27 (SpA) and #24 (IBD).
Data for December 31, 2008 and December 31, 2018 were collected. National data are available by diagnosis coded according to the ICD-10 classification, and data by department only concern all patients benefiting from a given LTD.
Results. National prevalence of SpA is estimated at 0.11% in 2008 (43.8% of women, average age 50 years) and 0.27% in 2018 (54% of women, average age 53 years). National prevalence of IBD is estimated at 0.19% in 2008 (55.6% of women, average age 46 years) and 0.27% in 2018 (55% of women, average age 49 years).
There is a 2.42-fold increase over ten years, which may correspond to the increase in prescription of biotherapies, which requires the benefit of LTD. North-south gradient in the prevalence of IBDs has been found, which is not the case for SpA. These differences in geographical distribution appear to be stable between 2008 and 2018. (Fig. 1)
Conclusion. The north-south gradient in the distribution of IBD in metropolitan France is not found in SpA. Despite an increasing prevalence, these distributions appear to be stable over time. While IBD and SpA share many physiopathological similarities, their different geographical distributions suggest the importance of different environmental factors in the development of each condition.

P49

MONOCENTRIC RETROSPECTIVE DESCRIPTIVE STUDY OF A HOSPITAL POPULATION OF SPONDYLOARTHRITIS (SPA) WITH A HISTORY OF CANCER

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Introduction. The aim of our study is to describe our hospital population of SPA patients with at least a history of cancer by describing the characteristics of rheumatic disease and the treatments received.
Methods. Patients with SPA, hospitalized between 2010 and 2019 or outpatients between 2009 and 2013. It has been crossreferenced with the Regional Tumour Registry, including cases of cancer since 1980 living in the Region at the time of diagnosis.Data were collected concerning the patient (sex, tobacco, history), rheumatic disease (age at diagnosis, phenotypic form, radiographic damage, HLA B27, CRP, associated manifestations, treatments received (NSAIDs, csDMARDs or bDMARDs)), and cancer (age at diagnosis, location).
Results. 92 cancers for 75 patients were identified. The sex ratio is 2/1 and differs according to the type of cancer. The average age at diagnosis of SPA is 45.6 years; and 58.5 years at diagnosis of cancer. 80% of cases are axial forms. 50% are HLA B27 and 61% have at least a high CRP. The main associated manifestations are psoriasis, arthritis and uveitis. The most common treatment is NSAIDs (83%), especially in the axial forms. 50% of patients received a csDMARDs (94% in the peripheral forms) and 33% a bDMARDs (at least one anti-TNF agent). The most common cancers are those of the prostate (37% of male cancers) and skin (32.6%). The most common cancers per system are skin, urological, gynaecological and haemopathies (Table I). Only one colon cancer and one breast cancer were observed. The vast majority of cancers occurred after the diagnosis of rheumatism. 12 patients had a history of cancer before the introduction of an anti-TNF and 3 of them developed cancer after biotherapy. 16 patients had at least 2 cancers.
Conclusion. Our study is the first to describe the rheumatological disease and the treatments received in the combination of SPA and cancer.

P49. Table I.

Type of cancer	% of cancer in SpA	% of cancer in Regional Tumour Registry
Prostate (in men)	37,1	18,5
Breast (in woman)	3,3	22,6
Colon-rectum	1,1	9
Skin cancer non melanoma	29,3	21,9
Hemopathy	8,7	7,5
Uterus cervix	16,7	7,6

P50

SEX DIFFERENCES IN CORRELATION OF SPINAL MOBILITY AND FUNCTIONAL IMPAIRMENT IN AXIAL SPONDYLOARTHROPATHY

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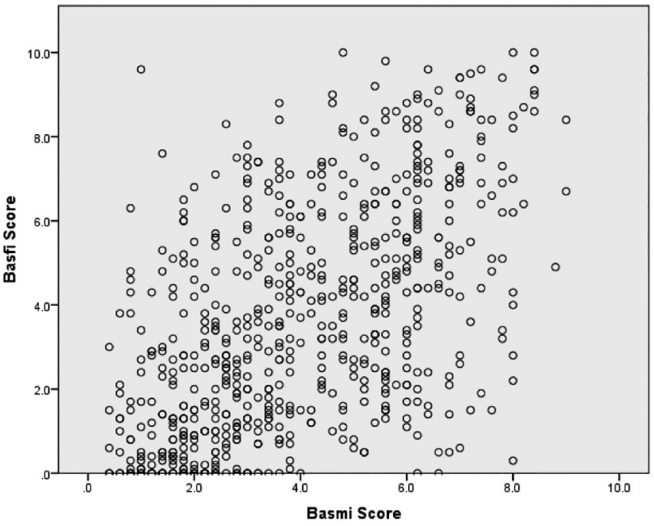
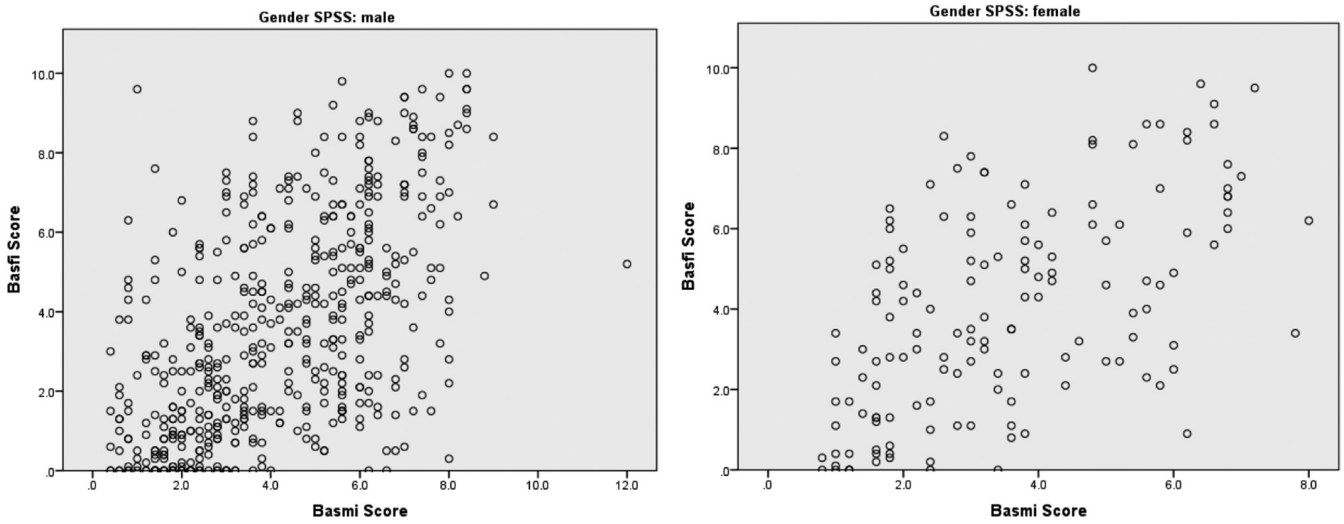
Introduction. Axial spondyloarthropathy (axSpA) is an inflammatory arthritis affecting the axial skeleton. Persistent disease activity can restrict spinal mobility over time, impairing function. The Ankylosing Spondylitis Registry of Ireland (ASRI) is an epidemiological data source on Irish patients with axSpA. The aim of this study was to examine the relationship between degree of spinal mobility and effect on function.
Methods. IBM SPSS was used for the analysis. Patients with both BASFI and BASMI scores were included. Variables were assessed with a Shapiro-Wilk's test for normal distribution and presence of a monotonic relationship by visual inspection of a scatterplot of the two variables. Then a Spearman's rank-order correlation was analyzed. A Pearson's partial correlation was preformed to control for gender. Records were then split by gender and Spearman's rank-order correlation was undertaken to assess correlation of scores within each gender.
Results. Data on BASMI and BASMI scores were available on 647 patients. Variables were not normally distributed as assessed by Shapiro-Wilk's test ($p<0.01$). The relationship was monotonic, as determined by visual inspection of the scatterplot. There was a significant, strong positive correlation between BASMI and BASFI scores in axSpA patients, $r_s(645) = 0.509$, $p=0.001$ (Fig. 1) based on a Spearman's rank-order correlation. A Pearson's partial correlation showed this correlation was stronger when controlled for gender, $r_{partial}(645) = 0.521$, and remained significant $p<0.001$. A Spearman's rank-order correlation analysis following splitting of records by gender showed the correlation becomes stronger if assessed within each gender (Females $r_s(144)= 0.577$, $p<0.01$; Males $r_s(509) = 0.576$, $p<0.01$) and has a slightly stronger association in females (Fig. 2).



P50. Fig. 1. Correlation between BASMI and BASFI scores overall.

Conclusions. Restriction of spinal mobility in axSpA has a strong positive association with functional impairment in axSpA. This correlation is more significant compared within each gender and is slightly stronger in females.

Acknowledgements. ASRI is supported by funding from AbbVie, Pfizer and UCB.



P50. Fig. 2. Sex specific correlation in (a) Males vs (b) Females

P51

NEGATIVE IMPACT OF UNEMPLOYMENT IN AXIAL SPONDYLOARTHROPATHY: RESULTS FROM THE ANKYLOSING SPONDYLITIS REGISTRY OF IRELAND

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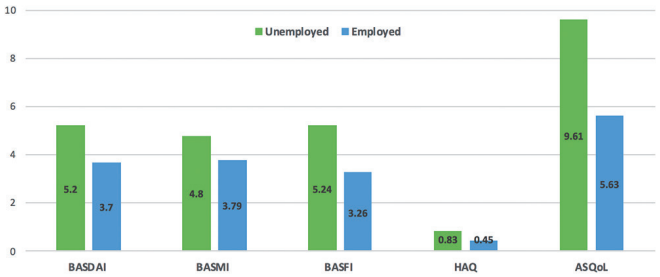
Introduction. Persistent disease activity in axial spondyloarthropathy (axSpA) can cause disability and affect ability to maintain employment. With advances in management, it was expected that employment levels in axSpA would be similar to nationally reported averages of the general population. The Ankylosing Spondylitis Registry of Ireland (ASRI) is a valuable source of epidemiological data on axSpA in Ireland. The aim of this study was to determine prevalence of unemployment in axSpA and the impact on patient outcomes.
Methods. IBM SPSS v.26 was used for statistical analysis. Patients were analysed on the basis of employment and categorised as employed or unemployed. A two tailed t-test was tested differences between mean continuous variables between the groups. For categorical variables a chi-squared test of independence determined significance. An alpha level of $p<0.05$ was deemed significant.
Results. Employment status was available for 876 patients. The population comprised 72.6% (644) males and 26.2% (232) females. Mean age was 45.9 years, disease duration was 19.4 years and delay in diagnosis was 8 years (mean scores: BASDAI 4.02, BASFI 3.67, BASMI 4.01, HAQ 0.53, ASQoL 6.47). Overall 21.6% (189) of the population was unemployed, considerably higher than national averages of 6.2-13.1% during the same period. In addition, 24% (213) reported axSpA as a factor limiting ability to work. Unemployed patients reported significantly worse BASDAI (5.2 vs 3.7, $p<0.01$), BASMI (4.8 vs 3.79, $p<0.01$), BASFI (5.24 vs 3.26, $p<0.01$), HAQ (0.83 vs 0.45, $p<0.01$), and ASQoL scores (9.61 vs 5.63, $p<0.01$) compared to employed axSpA patients. A higher proportion of males were unemployed, compared to females (Table I).



P51. Fig. 1. Comparison of outcomes on the basis of employment, all differences significant at the $p<0.05$ level.

P51. Table I. Characteristics of the employed versus unemployed cohorts.

	Unemployed	Employed	*p*-value
N	189 (21.6%)	687 (78.4%)	
Males	155 (82%)	489 (71.2%)	***<0.01***
Females	34 (18%)	198 (28.8%)	
Age	45.66	45.95	*0.79*
Disease duration	18.9	19.6	*0.51*
Delay to diagnosis	7.39	8.14	*0.28*
Symptom onset age	26.76	26.37	*0.66*
Caucasian	177 (93.7%)	622 (90.5%)	*0.1*
HLA-B27 +	130 of 145 (89.7%)	472 of 480 (98.3%)	*0.98*
Radiographic sacroiliitis	154 (81.5%)	529 (77%)	*0.41*
MRI sacroiliitis	72 (38.1%)	317 (46.1%)	*0.13*
Arthritis	60 (31.7%)	206 (30%)	*0.89*
Enthesitis	41 (21.7%)	111 (16.2%)	*0.15*
Dactylitis	13 (6.9%)	42 (6.1%)	*0.49*
Psoriasis	32 (16.9%)	112 (16.3%)	*0.87*
Uveitis	64 (33.9%)	233 (33.9%)	*0.29*
Colitis	12 (6.3%)	79 (11.5%)	*0.07*
NSAIDs	98 (51.9%)	349 (50.8%)	*0.59*
DMARDs	45 (23.8%)	153 (22.3%)	*0.46*
Biologic	141 (74.6%)	453 (65.9%)	*0.07*

Conclusions. Unemployment in axSpA remains considerably higher than the nationally reported average. Unemployed axSpA patients have worse quality of life, poorer levels of function and higher levels of disease activity. Further research is needed to determine how disease activity influences ability to engage in employment.

Acknowledgements. The ASRI is supported by funding from AbbVie, Pfizer and UCB.

P52

HEALTH RELATED QUALITY OF LIFE IN GOUT, PSORIATIC ARTHRITIS, RHEUMATOID ARTHRITIS AND ANKYLOSING SPONDYLITIS: RESULTS FROM A QUESTIONNAIRE STUDY

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Introduction. Gout, psoriatic arthritis (PsA), rheumatoid arthritis (RA), ankylosing spondylitis (AS), are common inflammatory joint diseases (IJD) that substantially affect HRQoL (Health Related Quality of Life).
Aim. To compare HRQoL assessed with the Short Form health survey (SF-36) between gout, PsA, RA and AS.
Methods. We performed a cross-sectional questionnaire study in Sweden. Individuals ≥18 years and with at least one ICD-10 diagnosis for gout, PsA, RA, or AS, recorded at a health care visit to a physician at a rheumatology clinic (for all diagnoses) or at a primary care center (for gout patients) years 2015-2017 were identified. Patients with gout (n=1589), PsA (n=1200), RA (n=1246) and AS (n=1095) were sent a questionnaire including questions regarding Visual Analogue Scales (VAS) for General Health, Pain, Fatigue, Health Assessment Questionnaire (HAQ), as well as the SF-36. The eight domains (a higher score indicating a better health status) as well as the overall physical (PCS) and mental (MCS) component scores (a value of 50 corresponds to unaffected HRQoL) of the SF-36 are presented. Respondents were matched on age, sex. ANOVA was used for between group comparisons of mean values. For non-normally distributed data, Kruskal Wallis test was used. For comparing distributions, the Chi-Square test was used.
Results. In total, 2896 (56.5%) individuals responded. After matching for age, sex, 249 individuals per diagnosis group remained. Gout patients reported significantly higher scores on SF-36 subscales as well as PCS (Table I), consistent with results seen before matching for age and sex. Lower values of HRQoL were noted in physical domains as compared to mental domains in all IJDs. Disability measured by HAQ was significantly lower in gout and VAS scores were more favourable compared to other IJDs.
Conclusion. Patients with gout report higher HRQOL compared to PsA, RA, AS.

P53

SERUM IL-23 SIGNIFICANTLY DECREASED IN OBESE PATIENTS WITH PSORIATIC ARTHRITIS SIX MONTHS AFTER A STRUCTURED WEIGHT LOSS INTERVENTION

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Introduction. Adipose tissue secretes a number of proinflammatory adipokines and cytokines of importance in the pathogenesis of PsA.
Objectives. To study the serum cytokine/adipokine profile in patients with PsA and obesity, before and after weight loss treatment, in comparison with controls without PsA, matched for age, sex and bodyweight.
Methods. Weight loss treatment with Very Low Energy Liquid Diet (VLED) (640 kcal/day) was given to patients and controls during 12-16 weeks, followed by reintroduction of an energy-restricted diet. cs/bDMARDs were held unchanged from 3 months before baseline (BL) until 6 months (M6) after BL. Patients were assessed with 66/68 joints count, BMI, questionnaires. Serum levels of cytokines, adipokines were measured in fasting blood samples at BL and M6.
Results. In total, 41 patients [age median 54 (IQR 48-62) yrs; 63 % women] and 39 controls [age 55 (46-60) yrs, 72 % women] were included. In the PsA patients, a significant decrease was noted in serum IL-23 at M6 (Table I). ΔIL-23 was significantly correlated with ΔBMI (rS=0.671, $p<0.001$) and Δ-DAS28CRP (rS=0.460, $p=0.005$). Serum leptin was also significantly decreased and Δ-leptin correlated with Δ-BMI (rS=0.554; $p<0.001$), Δ-DAS28CRP (rS=0.368; $p=0.019$) and Δ-DAPSA (rS=0.315; $p=0.048$). Increased serum levels of adiponectin and High Molecular Weight (HMW)-adiponectin were seen. ΔAdiponectin was negatively correlated with ΔBMI (rS=-0,318, $p=0.043$) and Δ-HMWadiponectin with ΔCRP (rS=-0.396, $p=0.010$).
Conclusions. In patients with PsA and obesity, weight loss was associated with a significant decrease in serum IL-23 and leptin and an increase in adiponectin and HMW-adiponectin at 6-months follow-up.

P52. Table I. Age-matched comparisons across diagnoses.

	Gout	PsA	RA	AS	*p*-value	*p*-value Gout vs PsA	*p*-value Gout vs RA	*p*-value Gout vs AS	*p*-value PsA vs RA	*p*-value PsA vs AS	*p*-value RA vs AS
Total (n)	249	249	249	249	N/A						
Age, mean (SD)	62.5 (11.2)	64.2 (10.2)	63.1 (11.6)	62.8 (10.5)	NS						
Education ≤12 years, n (%)	132 (53.0)	148 (59.4)	160 (64.3)	139 (55.8)	NS						
HAQ, mean (SD)	0.19 (0.40)	0.48 (0.55)	0.60 (0.63)	0.58 (0.58)	***	***	***	***	NS	NS	NS
VAS General Health, mean (SD)	2.6 (2.3)	3.7 (2.4)	3.8 (2.6)	4.0 (2.3)	***	***	***	***	NS	NS	NS
VAS Pain, mean (SD)	2.6 (2.4)	4.0 (2.6)	3.8 (2.6)	4.2 (2.4)	***	***	***	***	NS	NS	NS
VAS Fatigue, mean (SD)	3.6 (2.6)	4.5 (2.7)	4.3 (2.6)	4.9 (2.5)	***	***	*	***	NS	NS	*
SF-36 domains, median (IQR)											
Physical function	90.0 (75.0-95.0)	70.0 (51.3-95.0)	70.0 (45.0-90.0)	75.0 (50.0-90.0)	***	***	***	***	NS	NS	NS
Role physical	100.0 (33.3-100.0)	50.0 (0.0-100.0)	50.0 (0.0-100.0)	50.0 (0.0-100.0)	***	***	***	***	NS	NS	NS
Bodily pain	72.0 (42.0-100.0)	52.0 (41.0-74.0)	52.0 (41.0-74.0)	52.0 (41.0-64.0)	***	***	***	***	NS	NS	NS
General Health	67.0 (47.8-80.8)	56.0 (35.0-72.0)	55.0 (37.0-72.0)	50.0 (35.0-71.0)	***	***	***	***	NS	NS	NS
Vitality	65.0 (50.0-77.5)	57.5 (37.5-75.0)	57.5 (42.5-72.5)	50.0 (32.5-70.0)	***	*	*	***	NS	NS	NS
Social function	100.0 (68.8-100.0)	81.3 (57.8-100.0)	81.3 (67.2-100.0)	81.3 (50.0-100.0)	***	**	**	***	NS	NS	NS
Role emotional	100.0 (66.7-100.0)	100.0 (33.3-100.0)	100.0 (33.3-100.0)	100.0 (33.3-100.0)	**	NS	**	**	NS	NS	NS
Mental health	82.0 (66.0-92.0)	78.0 (60.0-92.0)	78.0 (60.0-92.0)	73.0 (60.0-88.0)	**	NS	*	**	NS	NS	NS
SF-36 summary scores, median (IQR)											
Physical component score	48.4 (38.8-54.7)	40.2 (28.5-50.2)	40.2 (28.2-49.0)	38.7 (30.1-48.2)	***	***	***	***	NS	NS	NS
Mental component score	51.7 (43.7-56.5)	51.0 (39.2-56.4)	50.7 (39.6-56.3)	47.7 (37.1-55.3)	*	NS	NS	*	NS	NS	NS

HAQ: Health Assessment questionnaire; IRQ: Interquartile range; SD: Standard deviation; VAS: Visual Analogue Scale; NS: non-significant.
*=significant at $p<0.05$. **=significant at $p<0.01$. ***=significant at $p<0.001$.

P53. Table I. Cytokines and adipokines in patients with psoriatic arthritis (PsA) and controls at baseline (BL) and in PsA patients after 6 months (M6) of follow up.

Analytes	PsA (BL), median (IQR)	Controls (BL), median (IQR)	*p*-value PsA vs controls (BL)	PsA (M6), median (IQR)	*p*-value PsA (BL) vs PsA (M6)
TNF-α (pg/mL)	12.92 (9.99-17.20)	11.66 (8.49-13.54)	0.077	12.49 (9.13-17.09)	0.234
IL-1β (pg/mL)	12.86 (6.73-19.69)	12.13 (5.30-14.81)	0.399	10.53 (5.02-19.69)	0.231
IL-6 (pg/mL)	8.72 (6.23-11.18)	7.23 (5.54-9.47)	0.154	7.53 (5.34-10.03)	0.444
IL-8 (pg/mL)	18.69 (13.55-23.21)	19.28 (13.86-27.32)	0.397	17.68 (13.53-21.65)	0.781
IL-12/23 (pg/mL)	602.7 (384.93-900.21)	544.1 (333.38-835.83)	0.626	666.57 (333.38-974.17)	0.978
IL-13 (pg/mL)	906.6 (679.96-1131.63)	885.1 (650.51-1103.93)	0.501	885.07 (561.48-1171.12)	0.377
IL-17 (pg/mL)	2.63 (1.58-4.65)	0.86 (0.41-3.35)	0.022	2.43 (0.41-4.48)	0.074
IL-23 (ng/mL)	0.40 (0.17-0.54)	0.54 (0.33-0.71)	0.027	0.18 (0.096-0.296)	**<0.001**
IFN-γ (pg/mL)	61.98 (43.73-76.34)	54.73 (43.83-69.95)	0.289	52.09 (40.50-76.34)	0.134
Resistin (ng/mL)	12.83 (10.58-15.77)	11.82 (9.22-16.42)	0.427	11.81 (10.05-14.91)	0.341
Leptin (ng/mL)	26.28 (14.35-48.73)	38.80 (20.47-59.87)	0.059	9.25 (4.40-16.24)	**<0.001**
HMW adiponectin (μg/mL)	3.39 (2.13-5.12)	4.26 (2.07-6.45)	0.384	5.95 (3.78-8.45)	**<0.001**
Adiponectin (μg/mL)	4.03 (3.18-6.07)	4.16 (3.27-5.11)	0.832	5.90 (4.04-7.93)	**<0.001**

BL: Baseline; HMW: High Molecular Weight; IL: Interleukin; IQR: interquartile range; M6: Month 6 after baseline; TNF-α: Tumor necrosis factor alpha.

P54

PREVALENCE OF UNDIAGNOSED AXIAL SPONDYLOARTHRITIS AMONG SECONDARY CARE PATIENTS WITH INFLAMMATORY BOWEL DISEASE

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Introduction/Aim. Contemporary data of the hidden axial spondyloarthritis (axSpA) burden in inflammatory bowel disease (IBD) population is lacking despite significant advances in imaging and improved understanding of the axSpA disease spectrum. This study aims to elucidate the hidden prevalence of axSpA in IBD patients in secondary care.
Materials and Methods. Screening questionnaires were sent to consecutive IBD patients attending routine clinics in a large teaching hospital serving an estimated 3000 IBD patients. Patients fulling the eligibility criteria (gastroenterologist-verified diagnosis, 18 to 80 years old, biologic therapy naïve, no previous diagnosis of axSpA); and a moderate-diagnostic-probability of axSpA [self-reported chronic-back-pain (CBP) onset before 45 years old] were invited for rheumatological assessment. This included a medical interview, physical examination (including joint and tender point count, MASES, dactylitis count, BASMI), patient reported outcomes (BASDAI, BASFI, BASGI, Harvey-Bradshaw-Index, Partial-Mayo-Index), relevant laboratory tests (CRP, ESR, HLA-B27), pelvic radiograph, axSpA protocol MRI, and remote review by a panel of expert axSpA rheumatologists.
Results. Of the 470 patients approached, 41% (n=191) responded. Of the 173 valid completed questionnaires, 53% (n=91) had CBP onset <45 yr and 90% (n=82) attended for clinical assessment. Further characteristics of the sample will be available in detail. The prevalence of rheumatologist-verified diagnosed axSpA in IBD patients seen routinely in a hospital setting with self-reported CBP which started before 45 years old is estimated at 5% (95% CI 1.3,12.0) with a mean delay to diagnosis of 12 (S.D. 12.4) years. If contemporary classification criteria were used, the prevalence of axSpA was 39% (ESSG), 12% (ASAS), 5% (mNYC) respectively.
Discussion/Conclusion. This represents a significant hidden disease burden. Greater awareness and education are still needed. We need to get it right first time by appropriate identification and referral from gastroenterology to rheumatology, in order to potentially shorten the delay to diagnosis and allow access to effective therapy.

P55

AGE AT ONSET IN AXIAL SPONDYLOARTHRITIS AROUND THE WORLD: DATA FROM THE INTERNATIONAL ASAS-PERSPA STUDY

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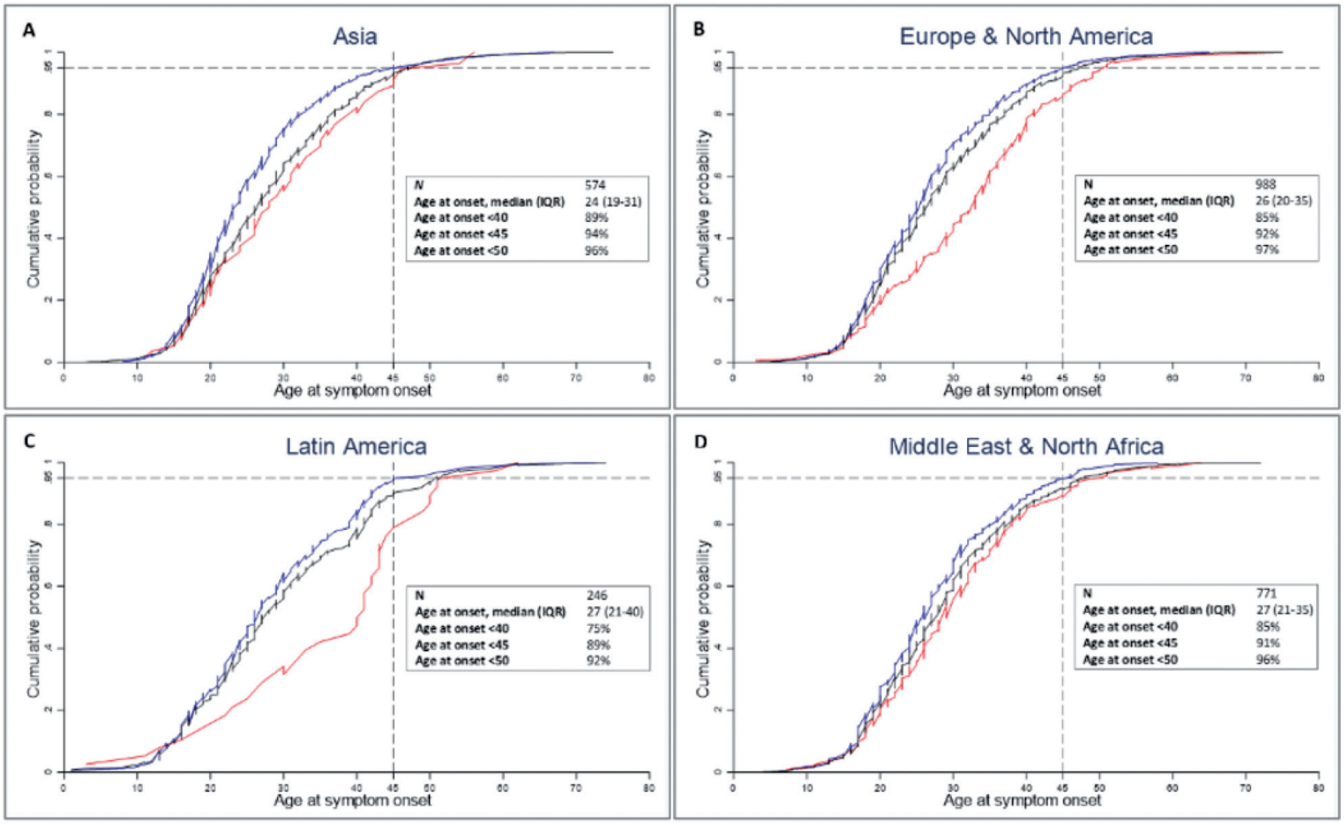
Introduction/Aim. Axial spondyloarthritis (axSpA) typically begins in young adulthood and age at onset is therefore very useful in identifying chronic back patients at an increased risk of axSpA. Age at onset <45 has been incorporated into the 2009 ASAS classification criteria for axSpA as a mandatory feature. Yet, the majority of data on which the age at onset <45 years criterion was based originates from Europe and it is therefore unknown if this age at onset applies to patients in other parts of the world. The aim of this study was to assess age at onset of axSpA and its relationship with HLA-B27 throughout the world, using data from the Assessment in SpondyloArthritis international Society (ASAS) peripheral involvement in Spondyloarthritis (ASAS-PerSpA) study.
Methods. Analyses were restricted to patients with an axSpA diagnosis and known age at onset of axial complaints. Cumulative probability plots were used to display the cumulative distribution of age at onset. Linear regression models were built to assess the relationship between HLA-B27 and age at onset of axial symptoms.
Results. The majority (92%) of patients with axSpA had an age at onset <45 years, with only small variation across geographical regions (Table I). Cumulative distribution plots showed age at onset of axial symptoms was consistently lower in HLA-B27 positive patients (in blue) than in HLA-B27 negative patients (in red) across all geographical regions (Figure). Linear regression models showed a significant effect of HLA-B27 status on the age at onset of axial symptoms in all included axSpA patients ($p<0.001$), and Latin America ($p<0.001$), Europe & North America ($p<0.001$), Asia ($p=0.006$) and Middle East & North Africa ($p=0.005$).
Conclusion. Irrespective of geographical region, the majority of axSpA patients had an age at onset of axial disease <45 years and HLA-B27 was associated with

P55. Table I. Median age at onset and percentage of patients with an age at onset of axial symptoms <40, <45 and <50, for the total included axial apondyloarthritis population and per geographical region, stratified by HLA-B27 status.

	N	Age at onset, median (IQR)	Age at onset <40	Age at onset <45	Age at onset <50
HLA-B27 positive					
Asia	*469*	23 (19-30)	91%	94%	97%
Europe & North America	*678*	25 (19-32)	88%	94%	98%
Latin America	*157*	26 (19-36)	81%	94%	96%
Middle East & North Africa	*320*	26 (20-32)	88%	94%	98%
Total axSpA population	*1624*	25 (19-32)	88%	94%	97%
HLA-B27 negative					
Asia	*56*	28 (20-36)	79%	88%	95%
Europe & North America	*184*	33 (22-40)	74%	85%	93%
Latin America	*38*	40 (26-44)	45%	76%	84%
Middle East & North Africa	*161*	29 (22-36)	84%	88%	94%
Total axSpA population	*439*	31 (22-39)	76%	86%	93%



P55. Fig. 1. Cumulative distribution of the age at onset of axial symptoms for axSpA patients in Asia (A), Europe & North America (B), Latin America (C), Middle East & North Africa (D), stratified by HLA-B27 status. The black lines represent all patients in each region, the blue lines represent HLA-B27 positive patients, and the red lines represent the HLA-B27 negative patients. The horizontal dashed line represent the 95% point, and the vertical dashed line represeentsan age at onset of 45 years
IQR: inter-quartile range.

earlier disease onset. These results provide crucial data for diagnosis, classification, and policies aimed at improving recognition of axSpA.

Acknowledgements. We would like to thank all ASAS-PerSpA investigators and members of the scientific committee.

P56

GEOGRAPHICAL PREVALENCE OF A FAMILY HISTORY IN PATIENTS WITH AXIAL SPONDYLOARTHRITIS AND ITS ASSOCIATION WITH HLA-B27: DATA FROM THE WORLDWIDE ASAS-PERSPA STUDY

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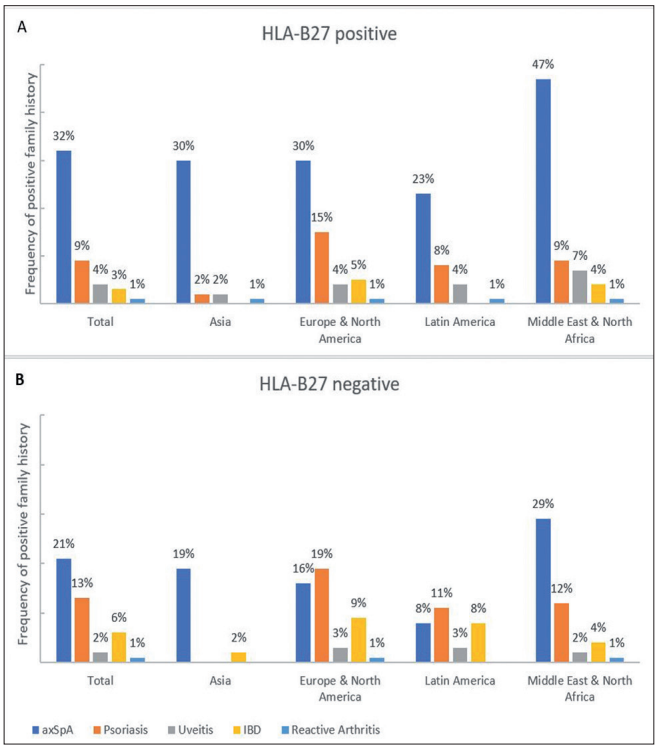
Introduction. Previous research in axial spondyloarthritis (axSpA) patients regarding a positive family history (PFH) of spondyloarthritis (SpA) and its association with HLA-B27 carriership focussed on Western European patients. Our aim was to investigate the impact of geographical region on family history and its association with HLA-B27 carriership in patients with axSpA around the world.
Methods. Data from patients diagnosed with axSpA with known family history and HLA-B27 status from the ASAS-perSpA study was analyzed. Logistic regression models were built to assess the effect of HLA-B27 status on any PFH and each disease in a PFH in all included patients and per geographical region.
Results. In the 2048 patients included, a PFH of axSpA was the most common in HLA-B27 positive patients across all geographical regions (Asia 30%, Europe&North America 30%, Latin America 23%, Middle East&North Africa 47%). A PFH of psoriasis and inflammatory bowel disease (IBD) was more common in HLA-B27 negative patients, a PFH of reactive arthritis (ReA) was rare in all patients (Fig. 1). Univariable logistic regression models showed an asso-



P56. Fig. 1. Frequency of positive family history per disease split per region for HLA-B27 positive patients (A) and HLA-B27 negative patients (B).

ciation between a PFH and HLA-B27 carriership in Asians, but this association does not seem apparent in the other geographical regions (Table I). However, a PFH of axSpA was associated with HLA-B27 carriership in all geographical regions except the Middle East&North Africa (Table I). An association between HLA-B27 carriership and a PFH of psoriasis or IBD was solely present in Middle East&North Africa (OR=0.4, 95%CI:0.2-0.7) and in Europe&North America (OR=0.5, 95%CI:0.3-0.9), respectively. No associations were found for HLA-B27 carriership and a PFH of uveitis and ReA in any geographical region.

P56. Table I. Univariable associations between HLA-B27 carriership and a positive family history of axSpA patients in the perSpA cohort stratified per geographical region.

	HLA-B27+ n=1,609	HLA-B27- n=439	OR (95% CI)	p-value
Any positive family history				
Total population				
Yes	**631**	**149**	**1.26 (1.01-1.57)**	**0.044**
No	978	290	Ref.	
Per geographical region				
Asia	**157/487**	**11/58**	**4.23 (2.26-7.91)**	**<0.001**
Europe & North America	270/658	67/182	1.19 (0.89-1.61)	0.241
Latin America	50/164	9/38	1.65 (0.80-3.39)	0.175
Middle East & North Africa	154/300	62/161	0.74 (0.53-1.02)	0.063
Positive family history for axSpA				
Total population				
Yes	**518**	**90**	**1.84 (1.43-2.38)**	**<0.001**
No	1,087	348	Ref.	
Per geographical region				
Asia	**144/487**	**11/58**	**4.19 (2.24-7.83)**	**<0.001**
Europe & North America	**196/658**	**30/182**	**2.09 (1.40-3.13)**	**<0.001**
Latin America	**37/164**	**3/38**	**3.95 (1.21-12.89)**	**0.023**
Middle East & North Africa	141/300	46/161	0.98 (0.69-1.40)	0.917

axSpA, axial spondyloarthritis; **CI,** confidence interval; **HLA-B27,** human leucocyte antigen B27; **OR,** odds ratio

Conclusions. Throughout the world, axSpA was the most common form of SpA in a family history. In all regions except Middle East&North Africa, a PFH of axSpA was associated with HLA-B27 carriership in axSpA patients. These results support the notion that the current definition of a PFH of SpA should be revaluated.

Acknowledgements. We would like to thank all ASAS-perSpA investigators and members of the scientific committee.

P57

EFFECTIVENESS OF REPEATING THE TUBERCULIN SKIN TEST IN PATIENTS WITH CHRONIC INFLAMMATORY ARTHROPATHIES ON TNFα INHIBITORS EXPOSITION: A 10-YEAR RETROSPECTIVE COHORT

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Introduction/Aim. To evaluate the effectiveness of repeating the tuberculin skin test (TST) in patients with chronic inflammatory arthropathies (CIA) exposed to TNFα inhibitors (TNFi).
Methods. This is a retrospective study based on electronic medical records of CIA patients, including rheumatoid arthritis (RA), ankylosing spondylitis (AS) and psoriatic arthritis (PsA), that performed two TST (0.1 mL PPD-RT-23, intradermally), being the first immediately before starting TNFi and the second after exposition to them, 6 months at least. The tuberculosis (TB) occurrence over time was considered as primary endpoint. Multivariable regression models and survival analyses were performed. P value below 0.05 was set as significant.
Results. A total of 359 CIA patients [RA, n=178; AS, n=135, and PsA, n=46] on TNFi were included and there was no significant statistically difference concerning epidemiological, demographic or clinical data among the groups. After using TNFi, there was significant increment of TST conversion (15-27%) in all groups, regardless CIA and TNFi. During the 10-Year follow-up, there were 27 incident cases of TB, mostly in AS and males, regardless conventional DMARDs, glucocorticoids, TST at baseline, age and TNFi agent. However, the only variable associated with TST repetition and new cases of TB was the clinical suspicious, after multiple statistical adjustments (Table I).
Conclusions. Our results showed TST repetition is associated with higher significant conversion rate after long-term TNFi exposition. On the other hand, it had no positive predictive value for TB diagnosis over time, except in those with clinical evidence for active infection. Therefore, our data do not support TST repetition indiscriminately.

P57. Table I. Incident cases of tuberculosis in patients with chronic inflammatory arthopathies on TNF blockade, according to TST repetition over time, clinical and epidemiological data.

Incident cases of TB in a 10-year follow-up (n=27)		Log Rank Test	*p*
Gender (Sex)	Male, n=18 (146)	7.309	0.007
Chronic Inflammatory	Ankylosing Spondylitis, n=14 (135)	9.157	0.001
Arthropathies	Psoriatic Arthritis, n=7 (46) Rheumatoid Arthritis, n=6 (178)		
Epidemiology	Positive, n=6 (51)	1.574	0.21
Chest X-Ray	Normal, n=23 (338)	4.427	0.035
Latent tuberculosis infection diagnosed on TNFi	Yes, n=23 (312)	0.008	0.930
TST baseline	Positive, n=8 (83)	0.611	0.434
TST repetition	Positive, n=9 (66)	6.756	0.009
Intention for repeating TST	Clinical suspicious, n=7 (18) Administrative issues,n=7 (174)	32.701	<0.0001
TNF-inhibitors	MAbs, n=26 (311) Fc-fusion Protein (Etanercept), n=1 (48)	2.414	0.12

P58

UNVEILING AXIAL INVOLVEMENT IN PSORIATIC ARTHRITIS: AN ANCILLARY ANALYSIS OF THE ASAS-PERSPA STUDY

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Background. Heterogeneity in psoriatic arthritis (PsA) is a current matter of discussion, especially concerning axial involvement.
Objectives. To determine the profile of axial PsA (axPsA) in a worldwide setting. Secondly, to identify predictive factors associated with the development of axial involvement in patients with PsA.
Methods. Data from 3684 patients with axial spondyloarthritis (axSpA) or PsA from the ASAS-PerSpA study were analysed. The ASAS-PerSpA is an observational, cross-sectional study that recruited consecutive patients with SpA from 68 centers worldwide. For this analysis, 367 PsA patients ever presenting axial involvement according to their rheumatologist were defined as axPsA and compared with 2651 axSpA patients, using logistic regression to later identify predictive factors for rheumatologist diagnosis of axPsA. In addition, the axPsA patients were also compared with 666 PsA patients without axial involvement (pPsA) and the characteristics associated with axial manifestations were determined by logistic regression analysis.
Results. Among all patients, 2651 were identified as axSpA and 1033 patients as PsA. Among those with axial involvement, 2651 were identified as axSpA (100% of axSpA) and 367 as axPsA (35.5 % of PsA). In comparison with axSpA, axPsA patients were less frequently males, older, less frequently HLA-B27 positive and had a higher body mass index (Table I). Additionally, while patients with axPsA had more peripheral manifestations and psoriasis, concomitant IBD and uveitis were higher in axSpA. In the multivariable analysis, older age at diagnosis (OR= 1.04), peripheral arthritis (OR= 7.32) and dactylitis (OR= 2.82) were significantly associated with a diagnosis of axPsA. However, uveitis (OR= 0.22), IBD (OR= 0.12) or HLA*B27 carriership (OR= 0.26) were inversely associated with axPsA diagnosis as compared to axSpA. Furthermore, axial involvement in patients with PsA was significantly associated with male gender (OR= 1.68), elevated CRP (OR= 2.87), and the absence of psoriasis (OR= 0.33).
Conclusion. In this worldwide setting, axPsA was defined by rheumatologists as a unique phenotype, with disease features lying between axSpA and pure pPsA. Male gender, elevated CRP and the absence of psoriasis were associated with axial involvement in patients with PsA.

P58. Table I. Demographic and disease characteristics of patients with axial involvement included in the ASAS PerSpA study. Results are shown as absolute numbers (percentages) or expressed as the mean ± standard deviation.

	axSpA n= 2651	axPsA n= 367	*p*-value
Sex (male)	1816 (68.5)	196 (53.4)	<0.001
Age at study visit	42.1(13.0)	50.0 (12.7)	<0.001
Body Mass Index	25.9 (5.1)	27.4 (5.7)	<0.001
Family history of SpA	944 (35.6)	135 (36.8)	0.684
Past history or current symptoms of back pain	2625 (99.0)	358 (97.5)	0.04
Inflammatory back pain (ASAS definition), n/N(%)	2500/2632 (94.9)	317/362 (87.6)	<0.001
Sacroiliitis on imaging, n/N (%) by:			
xRay mNY criteria	1997/2586 (77.2)	185/298 (62.1)	<0.001
MRI-SIJ, ASAS definition	1449/1757 (82.4)	141/225 (62.6)	<0.001
mNY criteria or ASAS definition	2446/2634 (92.9)	243/339 (71.7)	<0.001
HLA B27 positive	1674 /2126 (78.7)	54/182 (29.6)	<0.001
Elevated CRP (>5 mg/dL)	1863/2569 (72.5)	274/356 (76.9)	0.2
Classification criteria			
ASAS criteria	2339 (88.2)	185 (50.4)	<0.001
CASPAR criteria	123 (4.6)	274 (74.4)	<0.001
Peripheral Arthritis	946 (35.7)	318 (86.6)	<0.001
Enthesitis	1086 (41.0)	198 (54.0)	<0.001
Dactylitis	155 (5.8)	125 (34.1)	<0.001
Psoriasis	185 (7.0)	324 (88.3)	<0.001
IBD	129 (4.9)	3 (0.8)	<0.001
Uveitis	576(21.7)	13 (3.5)	<0.001
csDMARD (ever)	1359 (51.3)	339 (92.4)	<0.001
bDMARD (ever)	1585 (59.8)	263 (71.7)	<0.001
Specific drug for axial involvement			
NSAIDs	2465 (98.6)	317 (96.1)	0.002
csDMARD	828 (33.1)	187 (56.7)	<0.001
bDMARD	1288 (51.5)	180 (54.4)	0.32

spondyloarthritis; axSpA: axial spondyloarthritis; axPsA: axial psoriatic arthritis; SpA: spondyloarthritis; IBD: inflammatory bowel disease; CRP: C-reactive protein; mNY: modified New York; csDMARDs: conventional synthetic DMARDs; bDMARDs: biological DMARDs; NSAID: non-steroidal anti-inflammatory drugs.

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SERUM BIOMARKERS BEFORE AND AFTER A SIX MONTHS STRUCTURED WEIGHT LOSS INTERVENTION IN PATIENTS WITH PSORIATIC ARTHRITIS AND OBESITY COMPARED WITH CONTROLS

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Introduction. Obesity is associated with increased disease activity in psoriatic arthritis (PsA). The aim was to analyze serum biomarkers associated with inflammation, cartilage and bone metabolism before and after weight loss treatment in patients with PsA (CASPAR-criteria) and obesity (BMI≥33 kg/m^2).

Materials and Methods. Intervention: Very Low Energy Diet (VLED 640 kcal/day) during 12-16 weeks depending on baseline (BL) BMI, followed by an energy restricted diet. cs/bDMARDs were unmodified from 3 months before BL until 6 months (M6). Serum levels of vascular endothelial growth factor (VEGF), S100A8, S100A9, matrix metalloproteinases (MMP-3, 8 and 13), hepatocyte growth factor (HGF), B-cell activating factor (BAFF), Dickkopf (DKK)-1, sclerostin (SOST), soluble receptor activator of nuclear factor-kB ligand (RANKL), osteoprotegerin (OPG) and aggrecan were measured at BL and M6 with Magnetic Luminex Assays. Serum cartilage oligomeric matrix protein (COMP), carboxyterminal telopeptide of type-1 collagen (CTX-1) and osteocalcin (IDS) were measured with enzyme-linked immunosorbent assay (ELISA).
Results. 41 PsA patients [age median 54 (IQR 48-62) yrs; 63% women] and 39 controls [age 55 (46-60) yrs, 72% women] were included. At M6 the weight loss since BL was 18.7 (14.6-26.5) kg in the PsA patients and 22.6 (14.7-28.4) kg in the controls (p=0.546). At BL serum levels of the biomarkers were not significantly different in patients vs. controls. After weight loss significant reductions were seen in serum VEGF, S100A8, MMP-8, HGF, BAFF, COMP and DKK-1, whereas serum SOST and CTX-1 were significantly increased in both patients and controls (Table I). The other biomarkers were not significantly changed.
Conclusion. Weight loss in patients with PsA and controls was associated with lowered serum levels of several biomarkers related to inflammation and cartilage degradation, along with increased levels of biomarkers for bone turnover.

P60

EXTRACELLULAR MATRIX PROTEIN TURNOVER MARKERS ARE ASSOCIATED WITH axSpA – A COMPARISON WITH CONTROL SUBJECTS WITH OR WITHOUT PELVIC, BUTTOCK OR BACK PAIN

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Aim. To investigate circulating ECM biomarkers and their potential to differentiate axial spondylarthritis (axSpA) patients from control subjects with or without buttock or pelvic pain attributed to other reasons.
Methods. Biomarkers of ECM degradation/chronic inflammation (C1M, C2M, C3M, C4M, C6M, CRPM, C10C and COL10NC) and ECM formation (PRO-C2, PRO-C3, PRO-C4 and PRO-C6) were measured in 204 participants from the MASH study (Table I). Biomarker levels were compared among patients with axSpA and control subjects. Four new ratios (Type 2, 3, 4 and 6) were included, corresponding to the ratio of formation/degradation of type II, III, IV and VI collagens respectively. The biomarker data was natural log-transformed for normalization and linear regression models with pairwise comparisons were performed adjusting for age, gender, and BMI.
Results. Patients with axSpA had significantly increased MMP-mediated degradation of type I (C1M), type III (C3M), type IV (C4M) and type VI (C6M) collagen (p<0.0001, p=0.01, p<0.001, p<0.001, respectively), CRP-metabolite (CRPM, p=0.027) and formation of type IV (PRO-C4) collagen (p<0.0001) compared to control subjects, while a decreased formation of type III (PRO-C3) was observed (p=0.0052). Type 3, 4 and 6 ratios were also significantly decreased in patients with axSpA (p=0.004, p=0.03, p=0.002, respectively) compared to control subjects.

P59. Table I.

	PsA (n=41) BL median (IQR)	PsA (n=[a]41) M6 median (IQR)	PsA BL vs M6 *p*-value	Ctrl (n=39) BL median (IQR)	Ctrl (n=39) M6 median (IQR)	Ctrl BL vs M6 *p*-value
BMI (kg/m2)	35.18 (34.10-38.06)	29.83 (26.58-31.47)	**<0.001**	37.73 (36.73-41.47)	30.41 (27.92-33.22)	**<0.001**
CRP (mg/L)	4.00 (2.00-8.50)	3.00 (1.50-6.50)	**0.041**	4.00 (2.00-6.00)	2.00 (1.00-4.00)	**<0.001**
HGF (pg/mL)	327.87 (250.26-413.60)	271.31 (206.89-331.02)	**<0.001**	307.91 (239.06-348.27)	239.82 (200.28-276.00)	**<0.001**
VEGF (pg/mL)	79.63 (55.92-113.50)	69.64 (53.08-105.34)	**0.010**	82.33 (48.04-125.92)	65.04 (42.21-85.46)	**<0.001**
S100A8 (pg/mL)	75.54 (48.03-99.54)	63.26 (42.80-93.62)	**0.021**	71.77 (40.50-100.96)	63.26 (40.28-85.70)	**0.006**
MMP-8 (pg/mL)	9975.40 (6811.81-14154.80)	9202.62 (5767.15-12049.57)	**0.017**	7494.70 (4805.17-12616.93)	7218.25 (3465.95-9785.31)	**0.112**
BAFF (pg/mL)	794.36 (716.37-868.25)	674.57 (613.19-790.53)	**<0.001**	760.77 (664.10-827.28)	678.06 (603.74-719.84)	**<0.001**
COMP (pg/mL)	266.10 (209.85-366.00)	217.00 (156.00-272.00)	**0.008**	293.60 (185.20-340.50)	221.60 (163.50-300.00)	**0.018**
Dkk-1 (pg/mL)	3608.36 (3054.99-4401.26)	3382.61 (2802.51-4218.16)	**0.002**	3635.83 (3212.84-4380.58)	3480.41 (2948.88-4087.31)	**0.007**
SOST (pg/mL)	52.88 (32.52-65.39)	60.26 (37.17-85.57)	**0.014**	49.98 (30.77-79.26)	61.26 (35.69-81.40)	**0.019**
CTX-1 (ng/mL)	0.2680 (0.1960-0.3785)	0.5080 (0.3500-0.6440)	**<0.001**	0.2260 (0.1600-0.3380)	0.4990 (0.3010-0.6100)	**<0.001**

P60. Table I. Comparison of blood-tested biomarkers levels in MASH study.

Biomarkers (Mean (SD))	Patients with axSpA (n=41)	Control subjects (n=163)	*p*-value
C1M	84.3 (85.8)	36.2 (22.1)	<0.0001
C2M	23.97 (6.98)	25.26 (10.56)	0.82
C3M	15.6 (4.0)	13.9 (3.0)	0.011
C4M	34.9 (10.2)	27.9 (7.7)	<0.0001
C6M	20.5 (5.8)	17.4 (4.2)	<0.0001
CRPM	11.9 (2.9)	11.0 (5.9)	0.027
C10C	2567 (462)	2568 (560)	0.31
COL10NC	9.15 (5.81)	9.43 (8.27)	0.43
PRO-C2	22.39 (6.27)	25.84(16.91)	0.20
PRO-C3	10.2 (2.5)	11.3 (3.0)	0.0052
PRO-C4	7370.07 (763.99)	6672.60 (876.50)	<0.0001
PRO-C6	6.94 (2.45)	6.86 (2.53)	0.93
Type 2 (PRO-C2/C2M)	1 (0.36)	1.15 (0.93)	0.24
Type 3 (PRO-C3/C3M)	0.70 (0.28)	0.86 (0.31)	0.0004
Type 4 (PRO-C4/C4M)	228.18 (65.21)	252 (55.36)	0.03
Type 6 (PRO-C6/C6M)	0.36 (0.16)	0.41 (0.14)	0.0024

Conclusions. Biomarkers of collagen type I, III, IV and VI and a CRP-metabolite showed an altered turnover in patients with axSpA compared with the control subjects. Such biomarkers may be used in combination with MRI or independently to separate patients with axSpA from other back pain conditions.

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TWO-YEAR DIAGNOSTIC CONSISTENCY IN PATIENTS WITH CHRONIC BACK PAIN SUSPECTED OF AXIAL SPONDYLOARTHRITIS: DATA FROM THE SPACE COHORT

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Introduction/Aim. Diagnosis of axial spondyloarthritis (axSpA) is based on pattern recognition, which can be challenging and may change over time. We aimed to investigate consistency of diagnosis over two years in patients with chronic back pain (CBP) suspected of axSpA.
Methods. Patients >16 years referred to the rheumatology outpatient clinic with CBP (≥3 months and <2 years) starting <45, suspected of axSpA were included in SPACE. Based on information on all SpA features and locally read imaging, rheumatologists provided a diagnosis axSpA or no axSpA at baseline and two-year follow-up. Patients with an axSpA diagnosis at both timepoints were labelled consistent axSpA diagnosis, and patients whose diagnosis switched from axSpA to no axSpA or vice-versa, were labelled inconsistent axSpA diagnosis.

P61. Table I. Consistency of diagnosis over 2 years.

	Diagnosis axSpA at 2 years	Diagnosis no axSpA at 2 years
Diagnosis axSpA at baseline	184 (62%)	26 (9%)
Diagnosis no axSpA at baseline	19 (7%)	66 (22%)

P61. Table II. Characteristics at baseline and 2-year follow-up of the group with a consistent axSpA giagnosis over 2 years and the groups whose diagnosis (axSpA/no axSpA) changed.

	Consistent diagnosis axSpA AxSpA at baseline and 2yrs *(n=184)*		Inconsistent diagnosis AxSpA at baseline only *(n=26)*		Inconsistent diagnosis AxSpA at 2yrs only *(n=19)*	
	Baseline	2-year	Baseline	2-year	Baseline	2-year
Female	45%		15%		42%	
Inflammatory Back Pain	69%	74%	69%	77%	68%	84%
HLA-B27 positive	75%	75%	27%	27%	68%	68%
Sacroiliitis radiographs*	27%	38%	0%	0%	5%	5%
Sacroiliitis MRI*	69%	81%	23%	27%	5%	21%
Number of SpA features, mean (SD)	5 (2)	7 (2)	3 (1)	5 (2)	3 (1)	5 (1)
LoC diagnosis axSpA/no axSpA, mean (SD)	8.1 (2.0)	8.6 (1.8)	5.8 (1.7)	7.5 (1.9)	5.6 (2.2)	6.1 (2.3)

* Based on local reading
axSpA, axial Spondyloarthritis; HLA-B27, Human Leucocyte Antigen B27; LoC, Level of Confidence regarding diagnosis; MRI, Magnetic Resonance Imaging; SpA, Spondyloarthritis.

Results. Over two years the diagnostic consistency rate was 84% (Table I). Patients with an axSpA diagnosis at baseline only were more often female and less often HLA-B27 positive (Table II). Both groups with an inconsistent diagnosis had fewer SpA features and a lower level of confidence of the diagnosis (LoC), especially at baseline. In the group with an axSpA diagnosis at baseline only, LoC increased most compared to baseline: physicians were more certain of the diagnosis no axSpA at two-year follow-up than of the diagnosis axSpA at baseline. Sacroiliitis on imaging occurred much more frequent in the group with a consistent diagnosis. Although the percentage of patients with sacroiliitis on MRI increased in those with diagnosis of axSpA at two-year follow-up only, this was still much lower (21%) compared to those with consistent diagnosis (81%).
Conclusions. In patients with CBP suspected of axSpA the diagnostic consistency rate was high. Interestingly, in patients with an axSpA diagnosis at baseline only, rheumatologists were more certain about the absence of axSpA at two years than its presence at baseline.

P62

COMPARISON OF WORK OUTCOMES BETWEEN CHRONIC BACK PAIN PATIENTS WITH AND WITHOUT A DIAGNOSIS OF AXIAL SPONDYLOARTHRITIS: DATA FROM THE SPACE COHORT

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Introduction/Aim. To compare work outcomes between chronic back pain (CBP) patients with and without an axSpA diagnosis after two years of protocolised follow-up.
Methods. Work outcomes were assessed using the Work Productivity and Activity Impairment (WPAI) questionnaire. All WPAI outcomes were presented as percentages; higher scores implying greater impairment. Additionally, the proportion of patients with any (>0%) absenteeism, presenteeism, work productivity loss (WPL) and activity impairment were given. This study used data from the SPACE cohort, consisting of patients with CBP (≥3 months <2 years) suspected of axSpA. Analyses were restricted to patients with a diagnosis axSpA or no axSpA (CBP group) with a level of confidence ≥7 (0-10 scale) after locally read imaging. Assessment of presenteeism, absenteeism and WPL was restricted to the working population, defined as having paid work at both timepoints. Activity impairment was assessed for all included patients. Linear regression models were used to test the difference between groups at two-year follow-up for all WPAI variables. Baseline WPAI values and NSAID-use over time were tested as confounders.
Results. Patients with an axSpA diagnosis were more frequently male, HLA-B27 positive and had more SpA features at baseline (Table I). The population having paid work at both timepoints consisted of 124 axSpA patients (69%) and 52 patients (70%) with CBP. In both groups WPL improved and the reduction in WPL was apparent in presenteeism and absenteeism. Nevertheless, presenteeism, WPL and activity impairment were significantly higher at two-year follow-up in the group with CBP (Table II). In these linear regression models with baseline values and NSAID-use over time as covariates, axSpA was an independent predictor of lower presenteeism, WPL and activity impairment at two-year follow-up.
Conclusions. Despite significant improvements in both groups, patients with axSpA have significantly better work and activity impairment outcomes after two years of protocolised follow-up compared.

P62. Table I. Baseline characteristics of patients with a diagnosis of axSpA and those with CBP.

Characteristic	Diagnosis axSpA (N=181)	CBP (N=74)
Male, n(%)	101 (56)	22 (30)
Age (years), mean (SD)	30 (8)	31 (8)
Symptom duration (months), mean (SD)	13 (7)	13 (7)
HLA-B27 positive, n(%)	133 (73)	23 (31)
Number of SpA features, mean (SD)	5 (2)	3 (1)
Use of NSAIDs, n(%)	137 (76)	52 (70)
Employable population	*163 (90)*	*68 (92)*
Paid work, n(%)*	140 (86)	58 (85)

* Paid work at baseline, calculated based on the employable population.
axSpA, axial Spondyloarthritis; CBP, Chronic Back Pain; HLA-B27, Human Leucocyte Antigen B27; NSAIDs, Non-Steroidal Anti Inflammatory Drugs; SpA, Spondyloarthritis

P62. Table II. Work-productivity outcomes at baseline and two-year follow-up for the group with a diagnosis of axSpA and the group without a diagnosis.

	Diagnosis axSpA Baseline	2 years	CBP Baseline	2 years	p-values between groups at 2yrs
Working population	*N=124*		*N=52*		
Presenteeism[1], mean (SD) %	31 (28)	18 (24)†	40 (29)	30 (30)†	p=0.003*
Presenteeism[1] present, %	73	52	87	67	
Absenteeism[2], mean (SD) %	7 (18)	4 (14)†	12 (25)	6 (21)†	p=0.334
Absenteeism[2] present, %	22	7	27	12	
Work productivity loss[3], mean (SD) %	33 (29)	22 (27)†	43 (30)	35 (33)	p=0.005*
Work productivity loss[3] present, %	72	46	87	65	
Total population	*N=181*		*N=74*		
Activity impairment[4], mean (SD) %	38 (28)	22 (24)†	50 (29)	33 (29)†	p=0.001*
Activity impairment[4], n(%)	86	64	93	70	

[1]Presenteeism was defined as a reduction in performance due to disease while at work.
[2]Absenteeism was defined as time missed from work due to disease.
[3]Work productivity loss was a combined measure of presenteeism and absenteeism.
[4]Activity impairment was impairment due to disease in all non-work related activities.
*Significant difference between groups at two years; after correction for baseline values and NSAID use over time.
†Significant improvement within group over time.

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PREDICTORS OF BIOLOGIC THERAPY AND SYNDESMOPHYTE FORMATION IN PATIENTS WITH NON-RADIOGRAPHIC AXIAL SPONDYLOARTHRITIS

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Introduction/Aim. The definition of classification criteria for non-radiographic axial spondyloarthritis (nr-axSpA) by the Assessment of SpondyloArthritis international Society (ASAS) in 2009 expanded the spectrum of clinical and imaging studies of axial SpA. To date, there are no Brazilian studies that evaluate clinical outcomes of patients with nr-axSpA. The aim of this study is to identify clinical and laboratory characteristics of nr-axSpA, as well as predictors of use of biologic therapy and syndesmophyte formation in a tertiary outpatient center in Brazil.
Materials and Methods. All patients classified as nr-axSpA were included in a retrospective analysis. Baseline clinical and laboratory data were collected and compared with syndesmophyte formation and disease treatment data at follow-up using electronic databases.
Results. Sixty-six patients with nr-axSpA were selected to the study; 41 (62.1%) were males and 75% were HLA-B27 positive. Mean age at disease onset was 29.3±2.7 years, with average diagnosis time of 4.7±1.59 years and average follow-up of 7.56±1.67 years.
Thirty-one (47%) patients underwent biologic therapy during follow-up. These patients were more likely to present higher levels of baseline and mean C-reactive protein in multivariate analysis [31.5 (0.5–160) v. 6.7 (0–162) mg/L, p<0.001)]. In addition, 85% of patients who used biologics started treatment in the first three years after diagnosis. Seventeen (25.8%) patients developed syndesmophytes at follow-up. In multivariate analysis, older age (p=0.049) and lower Schober test at baseline (p=0.042) were independently associated with syndesmophyte formation at the end of follow-up.
Conclusion. High levels of baseline and mean C-reactive protein are associated with progression to biologic therapy, indicating that this marker may be a useful tool in the early identification of patients who may need more aggressive treatment. Furthermore, consistent with pathophysiological plausibility, the syndesmophyte formation is more likely in patients of older age and poorer mobility, as determined by a lower Schober test.

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QUALITY OF LIFE IN CHRONIC BACK PAIN PATIENTS, A 2-YEAR COMPARISON BETWEEN PATIENTS WITH AND WITHOUT A DIAGNOSIS OF AXIAL SPONDYLOARTHRITIS: DATA FROM THE SPACE COHORT

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Introduction/Aim. To study how quality of life (QoL) in axial spondyloarthritis (axSpA) patients relates to QoL of patients without axSpA, after two-years of protocolised follow-up.
Methods. QoL was assessed using the SF-36. Physical (PCS) and mental component summary (MCS) scores were calculated from age- sex- and country-weighted scores; and transformed to enable comparison to the general population mean of 50.
Additionally, the proportion of patients with an improvement/worsening above the minimal clinically important difference (MCID) were assessed. Patients from SPACE (patients aged >16 with chronic back pain suspected of axSpA) with a diagnosis axSpA or no axSpA -all with a level of confidence ≥7 (0-10 scale) after locally read imaging- were included. Linear regression models were used to assess differences between patients with and without axSpA at two-year follow-up. Baseline PCS and MCS scores and NSAID-use over time were tested as confounders.
Results. Patients with axSpA were more frequently male, HLA-B27 positive and had more SpA features (Table I). In both groups PCS significantly improved over two years, yet PCS was significantly better in patients with an axSpA diagnosis at two-year follow-up, after correction for baseline PCS scores and NSAID-use over time (Table II). Despite improvements over time, PCS scores were still well below the general population mean in both groups at two-year follow-up. MCS scores were not significantly different between groups at follow-up, and close to the general population mean. PCS scores of the majority of patients in both groups improved more than the MCID over two-years of protocolised follow-up. The proportions of patients who improved or worsened more than the MCID in MCS scores were similar.
Conclusion. After two years of protocolised follow-up physical functioning was better in axSpA patients, but remained significantly compromised in both groups in comparison to the general population.

P64. Table I. Baseline characteristics of patients with an axSpA diagnosis and those with CBP.

Characteristic	Diagnosis axSpA (N=183)	CBP (N=74)
Male, n(%)	105 (57)	20 (27)
Age (years), mean (SD)	30 (8)	31 (8)
Symptom duration (months), mean (SD)	13 (7)	13 (7)
HLA-B27 positive, n(%)	137 (75)	23 (31)
Number of SpA features, mean (SD)	5 (2)	3 (1)
Use of NSAIDs, n(%)	139 (76)	52 (70)

axSpA: axial Spondyloarthritis; CBP: Chronic Back Pain; HLA-B27: Human Leucocyte Antigen B27; NSAIDs: Non-Steroidal Anti Inflammatory Drugs; SpA: Spondyloarthritis.

P64. Table II. PCS and MCS scores at baseline and 2-year follow-up for the group with an axSpA diagnosis and those without axSpA (no axSpA).

	Diagnosis axSpA (N=186) Baseline	2 years	no axSpA (N=74) Baseline	2 years	p-values between groups at 2yrs
SF-36 PCS, mean (SD) %	28.0 (14.8)	40.5 (12.3)†	26.4 (13.6)	34.7 (15.6)†	p<0.001*
Improvement >MCID[1], n(%)		143 (78)		49 (66)	
Worsening >MCID[1], n(%)		22 (12)		12 (16)	
SF-36 MCS, mean (SD) %	47.3 (13.7)	47.9 (11.8)	46.5 (11.2)	48.9 (10.6)	p=0.364
Improvement >MCID[1], n(%)		76 (42)		35 (47)	
Worsening >MCID[1], n(%)		69 (38)		26 (35)	

[1]The MCID was defined as 3 points for the PCS and MCS, as this is commonly in clinical trials assessing efficacy of bDMARDs in axSpA.
*Significant difference between groups at two years; after correction for baseline PCS scores and NSAID use over time
†Significant improvement within group over time
axSpA, axial Spondyloarthritis; MCID, Minimal Clinically Important Difference; MCS, Mental Component Summary; PCS, Physical Component Summary; SF-36, Medical Outcomes Study 36-Item Short-Form Health Survey

P65

EXTERNAL VALIDATION OF THE ALTERNATIVE ANKYLOSING SPONDYLITIS DISEASE ACTIVITY SCORE IN THREE PHASE-3 RCT

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Introduction. In axial spondyloarthritis (axSpA), an alternative ASDAS (altASDAS) was developed to be used when Patient Global Assessment (PGA) is unavailable. AltASDAS replaces PGA with BASDAI total score and has so far only been internally validated (1).
Aim. To test the psychometric properties of altASDAS in an external cohort, according to the OMERACT filter 2.0 (truth, discrimination; feasibility was evaluated in our previous work).
Materials and Methods. Cohorts from the COAST trial programme of ixekizumab (COAST-V,-W,-X;primary endpoint: 16-week), enrolling radiographic/non-radiographic axSpA (r-/nr-axSpA) patients, were pooled. AltASDAS was calculated for all evaluations. ***Truth*** was assessed by: 1) agreement with original-ASDAS, as a continuous score and as a categorical variable (disease activity-DA-states), with intraclass correlation coefficients (ICC) and weighted Kappa respectively; 2) Bland & Altman plots with mean difference (MD) and 95% limits of agreement (LoA) 3) comparison of Pearson correlations of altASDAS and original-ASDAS with other constructs. ***Discrimination*** was tested by 1) the ability of altASDAS to distinguish high/low DA states according to an external anchor (nocturnal pain>6 indicating high DA) 2) agreement (kappa) with original-ASDAS in major/clinically important-improvement (MI/CII) achievement at 16-weeks 3) comparison of number of patients reaching MI/CII in the treatment versus placebo arm at 16-weeks, according to original and altASDAS (higher Chi-square=better discrimination).
Results. 958 patients were included, 70% males, mean age 42.7 years, 68% r-axSpA. ***Truth:*** 1) agreement with original-ASDAS: ICC=0.97 (95%CI:0.93-0.99), kappa=0.84 (0.83-0.85) 2) MD with original-ASDAS: 0.14; 95% LoA -0.56 to 0.28 3) correlation coefficients of altASDAS with related constructs were within a pre-specified 0.3-wide band around those between original-ASDAS and the same construct (Fig. 1 a). ***Discrimination*** altASDAS discriminated between DA states (Fig. 1 b) and in sensitivity to change (Kappa with original-ASDAS for MI=0.87 95%CI:0.83-0.91; for CII=0.93; 95%CI:0.90-0.95) and Fig. 1 c.

a) Truth: correlations with constructs related to disease activity
Data expressed as correlation coefficient r

	Function (BASFI)	Quality of Life (MCS)	Quality of life (PCS)	Overall functioning and health (ASAS HI)
Original-ASDAS	0.58	-0.11	-0.48	0.35
altASDAS	0.57	-0.11	-0.47	0.35

b) Discrimination: disease activity states

Anchor to define disease activity: Nocturnal pain (NRS 0-10)	NRS >6 Mean ASDAS (SD)	NRS ≤ 6 Mean ASDAS (SD)	SMD
Original-ASDAS	3.99 (0.76)	2.61 (0.86)	-1.68
altASDAS	3.87 (0.83)	2.46 (0.96)	-1.57

c) Discrimination: sensitivity to change

	Treatment N (%)	Placebo N (%)	Chi-square
Number of patients	628	272	-
Original-ASDAS MI	151 (24)	12 (4)	49.3
altASDAS-MI	167 (26)	13 (5)	56.4
Original-ASDAS CII	342 (54)	62 (23)	76.9
altASDAS-CII	350 (56)	64 (23)	79.2

P65. Fig. 1. Psychometric properties of the alternative Ankylosing Spondylitis Disease Activity Score (altASDAS).
BASFI: Bath Ankylosing Spondylitis Functional Index; MCS and PCS: mental and physical component summary of Short-Form 36;

Conclusions. AltASDAS was shown to be truthful and discriminative in an external cohort and as such has been fully validated and can be used in cases when PGA is unavailable.

Acknowledgements. The authors wish to thank Lilly for providing data of the trials COAST-V, (NCT02696785), COAST-W (NCT02696798) and COAST-X (NCT02757352).

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ALTERED SPLICING IN LEUKOCYTES FROM PATIENTS WITH AXIAL SPONDYLOARTHRITIS: CLINICAL INVOLVEMENT

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Aim. To identify shared and differential changes in the splicing-machinery in leukocytes from patients with Axial Spondyloarthritis (axSpA) and their involvement in clinical features of this chronic inflammatory disorder.
Methods. Seventy-six axSpA patients and 20 healthy donors were included. Forty-five selected elements of the splicing-machinery and 24 genes regulating their expression were evaluated in purified PBMCs, using a microfluidic qPCR-array (Fuidigm). The concomitant expression of 36 genes involved in several features of axSpA (inflammation, disease progression, radiographic severity and bone formation) was also assessed. Extensive clinical/serological evaluations were performed, including acute phase reactants (CRP/ESR) and scores related to disease activity (BASDAI, EVA), mobility (BASMI), and structural damage (mSASSS)].
Results. The unsupervised analysis of the disease-related gene profile allowed the identification of 2 distinctive clusters. Patients belonging to Cluster 1 (C1) displayed higher expression of several markers of radiographic severity and progression (*i.e.* ATP6VOD2, VIM, NOG) and disease activity (i.e. ERAP1, CHI3L1, COL1A1, S100A8). Clinically, C1-patients exhibited longer disease evolution and greater radiological damage, defined by higher BASFI and mSASSS scores, than Cluster 2. Likewise, percentages of smokers and positive patients for the HLA-B27 antigen were higher in C1.
The analysis of the splicing-machinery in both clusters revealed a differential expression of several components of the major spliceosome, splicing factors and splicing regulators, being most of them increased in C1, thus suggesting a significant alteration in axSpA patients with more adverse clinical profile.
Correlation studies showed close interrelation between spliceosome components and disease-related genes. Likewise, scores of disease activity and structural damage were associated with the deregulation of both, splicing-machinery components and genes related to radiographic progression and osteo-formation.
Conclusion. Leukocytes from axSpA display significant alterations in the splicing-machinery, further associated with clinical and molecular parameters related to structural damage and disease severity, thus suggesting their role as new disease biomarkers.

Acknowledgment. Supported by JA (PI-0139-2017).

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CAN SERUM CALPROTECTIN BE USED AS AN ALTERNATIVE BIOMARKER OF INFLAMMATION IN SPONDYLOARTHRITIS?

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Introduction. Most studies show that the level of serum calprotectin (SCP) was increased in patients with spondyloarthritis, as well as reveal a correlation with the disease activity based on CRP and the BASDAI index. The conducted studies showed higher SCP sensitivity compared to CRP when using anti-TNF therapy. However, results of SCP studies are discrepant and require further investigation.
Purpose. To study of the relationship between the SCP level and disease activity indicators in patients with AS.
Materials and Methods. 72 patients with AS (according to mNYC 1984), 37 men, 35 women, were sequentially admitted to the Rheumatology Research Institute Clinic in 2020. The examinations were conducted according to the ASAS recommendations. 86.1% had HLA B 27 and mean age was 39.5 (±13.3)y, age of the disease onset - 23.8 (±10.8)y. Laboratory indicators: CRP 8 mg/l [3; 32], ESR 16 mm/h [7.5; 38.5], SAA - 14.5 [5.83;71.95] mg/l. In addition to the standard examination, all patients were tested for serum calprotectin by the ELISA method using commercial serum kits and a microplate reader. SAA (serum amyloid A) was measured by a nephelometric method.
Results and discussion. The median SCP in 72 patients was 4.19 μg/ml [2.7; 7.4]. Comparison of the mean SCP, SAA, CRP, ESR levels by gender did not show any statistically significant differences. Correlations between SCP and other indicators are shown below in Fig. 1.
Patients with elevated serum calprotectin levels (>2.9 μg/ml) had a longer disease duration (10 years and 5 years; p=0.8), higher blood CRP levels (15.4 and 2.9; p=0.0007), SAA level (25.3 and 2.9; p=0.0008), and peripheral arthritis frequency (70% and 30%; p=0.001) compared to patients with normal SCP values.

Findings. SCP correlated slightly with BASDAI, ASDAS, and ESR in AS pts and has a moderate strength of association with CRP and SAA. The level of SCP can be used as an alternative disease activity indicator in AS.

Disease duration	r = - 0,02	p < 0,001	Very low negative correlation
ESR	r = 0,2	p < 0,001	Low correlation
BASDAI	r = 0,16	p = 0,2	
ASDAS-СРБ	r = 0,19	p < 0,001	
SAA	r = 0,5,	p < 0,001	Moderate correlation
CRP	r = 0,42	p < 0,001	

P67. Fig. 1.

P68

ASSOCIATION BETWEEN INDIVIDUAL AND COUNTRY-LEVEL SOCIOECONOMIC FACTORS AND WORK PARTICIPATION IN PERIPHERAL AND AXIAL SPONDYLOARTHRITIS

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Aim. To examine whether associations between socioeconomic factors and work outcomes differ across SpA phenotype and whether associations for individual-level socioeconomic factors are modified by country-level factors.
Methods. Working age patients (18-65 years) from the ASAS-perSpA (peripheral involvement in SpA) study were included. Associations between individual- (age, gender, education, marital status) and country-level socioeconomic factors (Human Development Index (HDI), HCE) with work outcomes (employment status (binary), absenteeism, presenteeism (tertiles)) were assessed using mixed-effects models, adjusted for confounders. Separate models for ASDAS, BASFI and BASDAI were created in turn due to collinearity. Effect modification by SpA phenotype and country-level factors was tested using interaction terms.
Results. A total of 3835 patients (mean age 42 years, 61% males) from 23 countries worldwide were included (66% axSpA, 10% pSpA, 23% PsA). Being employed was associated with gender (male vs female OR 2.5; 95%CI 1.9-3.2), education (university vs primary OR 3.7; 2.9-4.7) and being married (vs single OR 1.3; 1.04-1.6) (Table I). University (vs primary) education was associated with lower odds of absenteeism (OR 0.7; 0.5-0.7) and presenteeism (OR 0.5; 0.3-0.7). Associations were not statistically different across SpA phenotypes. HCE was significantly associated with all work outcomes: employment (OR 2.5; 1.5-4.1), absenteeism (OR 0.6; 0.4-0.9) and presenteeism (OR 0.6; 0.3-0.9). HDI results were similar. Gender discrepancy in odds of employment was greater in countries with lower socioeconomic development; eg, males had 3.5 higher odds of employment than females in countries with low HCE, whereas the difference was 1.8 fold in high HCE countries.

P68. Table I. Effect of individual socio-economic factors on work outcomes.

		Employment status OR (95% CI)	Absenteeism OR (95% CI)	Presenteeism OR (95% CI)
N		3780	2218	2127
Age		1.43 (1.36,1.51)	1.00 (0.99,1.01)	1.00 (0.99,1.01)
Age²		0.996 (0.995, 0.996)	NS - uni	NS - uni
Male (vs female)		2.48 (1.92,3.21)	1.22 (0.96,1.56)	0.97 (0.78,1.20)
Education	Primary	ref	ref	ref
	Secondary	1.86 (1.48,2.35)	0.69 (0.49,0.99)	0.69 (0.49,0.99)
	University	3.68 (2.87,4.72)	0.67 (0.47,0.96)	0.49 (0.34,0.69)
Marital status	Single	ref	ref	ref
	Married	1.27 (1.04,1.56)	0.95 (0.73,1.22)	0.98 (0.78,1.22)
	Divorced or Widowed	1.39 (0.98,1.97)	1.39 (0.88,2.18)	1.16 (0.74,1.82)
ASDAS		0.78 (0.72,0.84)	1.51 (1.33,1.72)	2.31 (2.04,2.61)
Fatigue		NS - multi	1.14 (1.09,1.21)	1.30 (1.24,1.36)
Depression/anxiety		0.70 (0.59,0.82)	1.45 (1.15,1.82)	1.95 (1.59,2.39)
Fibromyalgia		NS - multi	1.62 (1.11,2.35)	1.58 (1.03,2.41)
BMI		NS - multi	0.99 (0.97,1.02)	NS - multi
Dactylitis		1.41 (1.12,1.76)	NS - uni	NS - uni
Uveitis		NS - multi	0.62 (0.46,0.84)	NS - uni
NSAIDs		NS - multi	1.53 (1.18,1.99)	1.32 (1.07,1.64)
bDMARDs		NS - multi	NS - uni	1.23 (1.01,1.51)

Models used ASDAS/fatigue rather than BASDAI or BASFI, which are collinear thus modelled separately. ASDAS, AS disease activity score; bDMARD, biologic DMARD; BMI, body mass index; OR, odds ratio; 95%CI, 95% confidence interval; NS, not significant (at P<0.05) at the univariable or multivariable modelling stage.

Conclusions. Individual- (lower education) and country-level socioeconomic factors (lower healthcare expenditure) were both associated with (lower) work participation, independently of SpA phenotype. This highlights the need for wider societal interventions, such as improving education and healthcare investment, to improve work outcomes.

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ONLINE QUESTIONNAIRE IN AXSPA DIAGNOSTICS

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Introduction. Mean diagnostics delay in axial spondyloarthritis (axSpA) is 7.4±8.4 years (mean ± SD) (1). Online technologies could decrease the diagnostics delay in axSpA. Objective of the study to develop the online questionnaire that effectively calculates probability axSpA.
Materials and Methods. Based on positive and negative predictive values of symptoms from ASAS axSpA criteria (2009) the axSpA Early Diagnostics Questionnaire (aEDQ) was developed. The aEDQ was available on website of Russian Ankylosing Spondylitis Association. Persons with high risk of axSpA according aEDQ were recommended to visit rheumatologist. Collected data were compared with results of EMAS online survey (n=2,846), and SPACE cohort (n=461) (1, 2), and Russian North-Western axSpA LADOGA register (n=1,544).
Results. From October 2018 to January 2019 22,925 people visited the aEDQ, 21,939 (95.6%) people completed the questionnaire, 7,888 (35.95%) persons were judged as having high risk of axSpA. Within one month after receiving of the questionnaire results 424 people with high risk of axSpA (5% out of all recommended) visited rheumatologist (mean age 42.01±6.6 years, male 275 (65%), symptoms duration 4.4±3.0 years, HLA-B27 positive 292 (68.3%)). In 254 patients out of 424 (59.9%) axSpA was confirmed as compared with 44.6% in SPACE cohort results (χ^2=19.24, p<0.000 for differences with SPACE cohort results (2)).
Mean diagnostics delay in aEDQ cohort was 4.4±3.0 years (mean ± SD), n = 254, in LADOGA register was 8.8±4.8 years, n=1,544, and 7.4 ± 8.4 years in EMAS survey (1), p<0.0001 for all the differences.
Conclusions. Online axSpA Early Diagnostics Questionnaire with function axSpA probability detection can decrease diagnostics delay and increase percentage of confirmed by rheumatologist axSpA as compared with other forms of axSpA search.

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P70

SPONDYLOARTHRITIS MORTALITY RELATED TO COVID-19 IS SIMILAR TO RHEUMATOID ARTHRITIS AND SYSTEMIC LUPUS ERYTHEMATOSUS – DATA FROM THE ReumaCoV-BRAZIL REGISTRY

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Background. Traditionally, patients with systemic lupus erythematosus (SLE) have higher probability of death after infections than those with rheumatoid arthritis (RA) and spondyloarthritis (SpA), particularly related to immunosuppression status and systemic involvement. However, there is lack of information regarding mortality rate in immune-mediated rheumatic diseases (IMRD) during the SARS-CoV-2 pandemic.
Aim. To compare the mortality rate related to COVID-19 among RA, SLE and axial SpA patients.
Methods. The ReumaCoV Brazil is a multicenter, observational, prospective cohort designed to monitor immune-mediated rheumatic diseases patients during COVID-19 pandemic in Brazil. There were included SLE, RA and axial SpA patients, according to the international and validated classification criteria. The

control group included patients with these same IMRD no COVID-19 diagnosis, matched to sex and age. Demographic data, managing of COVID-19, comorbidities, clinical characteristics were collected.
Results. From May 20th, 2020 to Jan 24th, 2021, a total of 1,362 IMRD patients were enrolled, of whom 604 (44.3%) with SLE, 489 (35.9%) with RA and 269 (19.8%) with SpA. The main findings associated with COVID-19 diagnosis, according to lab criteria, including RT-PCR and serology (IgM/ IgG for SARS-CoV-2), and the mortality rate are shown in Table I. Interestingly, there were no significant statistically differences concerning mortality rate among the IMRD, regardless disease activity and concomitant medications, including conventional or biologic DMARDs.
Conclusions. Our data showed patients with COVID-19 seem to have similar mortality pattern, regardless IMRD.

P70. Table I. Mortality rate related to COVID-19 among systemic lupus erythematosus, rheumatoid arthritis and axial spondyloarthritis patients: Data from ReumaCov-Brazil registry.

	Total (n=1,362)	Sampling	SLE (n=604)		RA (n=489)		Axial SpA (n=269)		p
	n	% (95%CI)	n	% (95%CI)	n	% (95%CI)	n	% (95%CI)	
COVID-19 diagnosis	751 (55.1%)		317 (52.5%)		269 (55%)		165 (61.3%)		
Death	26 (3.5%)	1.9 (1.2-2.8)	14 (4.4)	1.4 (1.3-3.9)	7 (2.6)	2.3 (0.5-2.9)	5 (3.0)	1.9 (0.6-4.3)	0.566

SLE: systemic lupus erythematosus; RA: rheumatoid arthritis; SpA: spondyloarthritis.

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PERFORMANCE OF THREE REFERRAL ALGORITHMS FOR DIAGNOSING AXIAL SPONDYLOARTHRITIS

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Background/Aim. Patients presenting with back pain and psoriasis, acute anterior uveitis (AAU), or inflammatory bowel disease (IBD) represent a high-risk population for axial spondyloarthritis (axSpA). Several referral strategies have been proposed. The Berlin criteria include inflammatory back pain (IBP), B27 and sacroiliitis by imaging. The ASAS modification excludes IBP as a mandatory entry item. The Dublin Evaluation Tool (DUET) restricted to AAU is based on joint pain, B27 and cutaneous psoriasis.
We aimed to: (1) compare the performance of referral algorithms in an inception cohort of patients with extra-articular manifestations presenting to a rheumatologist with undiagnosed back pain; (2) determine whether different IBP criteria impact the performance of the algorithms.
Materials/Methods. Consecutive patients ≤45 years with ≥3 months undiagnosed back pain with any one of psoriasis, AAU, or IBD underwent clinical evaluation by a rheumatologist for axSpA. The rheumatologist determined presence/absence of axSpA at 3 consecutive stages after: 1. Clinical evaluation; 2. Results of labs (B27, CRP) and radiography; 3. Results of MRI evaluation. Final diagnosis by the rheumatologist was used as external standard. We tested the following IBP criteria in the algorithm: ASAS, Berlin, rheumatologist global for IBP >5 (0-10 scale), and DUET in AAU.
Results. Among 246 patients, 46/73/127 presented with psoriasis/AAU/IBD. 47.6% were diagnosed with axSpA (68.5% B27-positive): 45.7%/61.6%/40.2% with psoriasis/AAU/IBD. The performance of the ASAS-modification of the Berlin algorithm was superior to the original algorithm irrespective of IBP criteria (Table I). The DUET algorithm AAU performed worse.

P71. Table I.

Algorithm	Sensitivity (%)	Specificity (%)	Correct diagnosis (%)	False negative (%)	False positive (%)
Original Berlin (ASAS criteria for IBP)	65.3	76.6	71.1	16.7	12.2
Original Berlin (Berlin criteria for IBP)	64.4	76.6	70.7	17.1	12.2
Original Berlin (IBP global >5)	67.8	78.1	73.2	15.4	11.4
ASAS Modification 2 of Berlin algorithm (ASAS criteria for IBP)	73.7	75.8	74.8	12.6	12.6
ASAS Modification 2 of Berlin algorithm (Berlin criteria for IBP)	73.7	75.0	74.4	12.6	13.0
ASAS Modification 2 of Berlin algorithm (IBP global >5)	76.3	77.3	76.8	11.4	11.8
DUET	84.4	50.0	71.2	9.6	19.2

Conclusion. The ASAS modification of the Berlin algorithm represented the preferred referral strategy for patients with undiagnosed back pain and extra-articular features.

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CLUSTER OF DIFFERENTIATION 14 (CD14) AND LIPOPOLYSACCHARIDE-BINDING PROTEIN (LBP) IN PSORIATIC ARTHRITIS AND SPONDYLOARTHRITIS

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Introduction. Psoriatic arthritis (PsA) and spondyloarthritis (SpA) are chronic inflammatory joint diseases. In both of these diseases there is an increased occurrence of intestinal inflammation and they also associate to chronic inflammatory bowel disease. All of these diseases have previously been shown to involve the immune response called the T-helper cell 17 (Th17) response. Possible biomarkers for intestinal inflammation and transmission of bacteria across the intestines are soluble cluster of differentiation 14 (CD14) and lipopolysaccharide-binding protein (LBP). The aim of this study is to determine if the levels of plasma Th17 cytokines, CD14 and LBP differs between patients with early PsA, early SpA and healthy controls.
Methods. 55 patients with PsA, 52 patients with SpA, and 33 Danish blood donor controls were included. The mean BASDAI was 38.33 [95% confidence interval: 33.74 - 42.91] at time of sampling. Plasma proteins were measured using Luminex assays. Statistical analysis was done using logistic regression and Odds ratios (OR) adjusted for sex and age.
Results. Upregulated plasma expression of CD14 and LBP was found in both PsA and SpA compared to control as opposed to all cytokines that did not differ. For CD14, PsA vs. controls: OR = 35.92, *p*-value = <0.001. SpA vs. controls: OR = 19.36, *p*-value = <0.001. PsA vs. SpA revealed: OR = 1.52, *p*-value = 0.202. For LBP PsA vs. controls: OR = 1.38, *p*-value = <0.001. SpA vs. controls: OR = 1.54, *p*-value = <0.001. PsA vs. SpA revealed: OR = 1.01, *p*-value = 0.670.
Conclusion. Plasma expression of both CD14 and LBP were statistically significantly higher in both PsA and SpA compared to controls. In contrast, no difference was found between PsA and SpA nor for any of the Th17 cytokines. Thus, both CD14 and LBP are possible new biomarkers for PsA and SpA.

P73

PHARMACOVIGILANCE PREGNANCY DATA IN A LARGE POPULATION OF PATIENTS WITH CHRONIC INFLAMMATORY DISEASE EXPOSED TO CERTOLIZUMAB PEGOL: PREGNANCY OUTCOMES AND CONFOUNDERS

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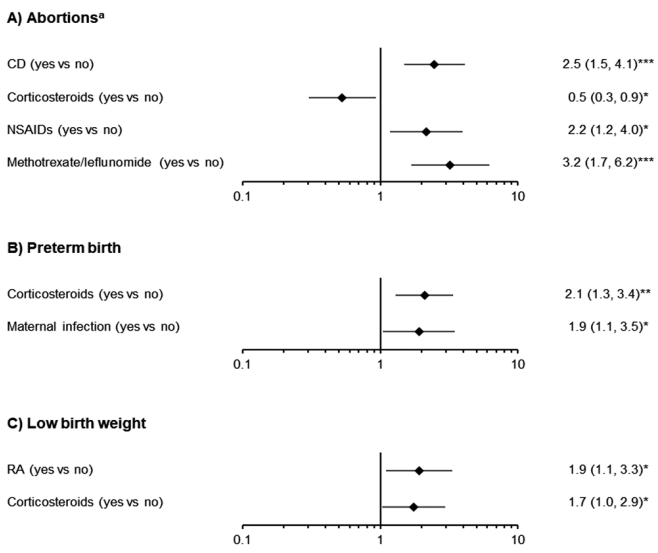
Introduction. Chronic inflammatory diseases (CID) in women of childbearing age (WoCBA) are increasingly being treated with tumour necrosis factor inhibitors (TNFi). Data on TNFi-exposed pregnancy outcomes are limited. Certolizumab pegol (CZP), a PEGylated, Fc-free TNFi, has no/minimal placental transfer from mother to infant during the third trimester (1).
Methods. Details of prospectively-reported, CZP-exposed pregnancies with known outcomes from the UCB Pharmacovigilance safety database were reviewed to 01 November 2020. Confounders were evaluated using a multivariate stepwise regression model.
Results. 1,392 prospective pregnancies (1,425 known outcomes) with maternal CZP exposure were reported (Table I), of which 215 were in patients who reported a diagnosis of axial spondyloarthritis. Most (88.4%) pregnancies resulted in live birth (Table I). Congenital malformations were reported in 35/1,425 outcomes (2.5%) and in 30/1,259 live-born infants (2.4%); 26 (2.1%) were major according to the Metropolitan Atlanta Congenital Defects Program criteria. No pattern of specific congenital malformations was observed. In the confounders

analysis, corticosteroid use was associated with increased odds of preterm birth and low birth weight, while use of NSAIDs was associated with increased odds of abortion (Fig. 1).

P73. Table I. Maternal characteristics and pregnancy outcomes following maternal exposure to CZP.

n/N (%)	All prospective pregnancies
Maternal characteristics	N=1,392
Maternal age (years), mean (SD)	31.9 (5.1)
CZP exposure	
At least first trimester	1,021/1,392 (73.3)
All trimesters	547/1,392 (39.3)
Pregnancy outcomes	N=1,425
Live births	1,259/1,425 (88.4)
Ectopic pregnancies[a]	5/1,392 (0.4)
All abortions	150/1,425 (10.5)
Spontaneous	111/1,425 (7.8)
Elective[b]	39/1,425 (2.8)
Stillbirths	11/1,425 (0.8)
All congenital malformations	
All known outcomes	35/1,425 (2.5)
Live births	30/1,259 (2.4)
Major congenital malformations based on live births[c]	26/1,259 (2.1)
Preterm birth based on live births	124/1,259 (9.8)
Low birth weight (<2.5 kg) based on live births	101/1,259 (8.0)

[a]Percentages reported using the total number of pregnancies as the denominator; [b]Includes medically indicated and other non-spontaneous abortions; [c]According to the Metropolitan Atlanta Congenital Defects Program criteria. CZP: certolizumab pegol; SD: standard deviation.



P73. Fig. 1. Confounders identified for pregnancy outcomes from multivariate stepwise regression analysis.
A. Includes spontaneous, elective and medically indicated abortions. Results are presented as odds ratios (OR) with 95% confidence intervals (CI). *p<0.05, **p<0.005, ***p<0.0005.
Patients with missing information about presence/absence of confounders were excluded. CD: Crohn disease; NSAID: non-steroidal anti-inflammatory drug; RA: rheumatoid arthritis.

Conclusions. Our data confirm the impact of specific CID, concomitant drugs or comorbidities on pregnancy outcomes. No signals for increased adverse pregnancy outcomes or specific congenital malformations were observed in CZP-exposed pregnancies, offering further reassurance for WoCBA considering CZP treatment.

Acknowledgements. This study was funded by UCB Pharma. Editorial services were provided by Costello Medical and funded by UCB Pharma.

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P74

TRANSCRIPTOME ANALYSIS OF MONOCYTE-DERIVED DENDRITIC CELLS FROM SPONDYLOARTHRITIS (SPA) PATIENTS REVEALS A MAJOR IMPACT OF B27 ON GENE EXPRESSION

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Introduction. HLA-B27 is a major risk factor for developing spondyloarthritis (SpA). However, how precisely it is involved in SpA pathogenesis is still poorly understood. This transcriptomic study aims at providing genes involved in this process with little to no interaction with the main risk factor.
Methods. 112 SpA patients (87 B27+ and 25 B27-) and 110 healthy controls (52 B27+, 48 B27-), were included. Dendritic cells were derived in culture from purified blood monocytes and then stimulated with LPS for 3, 6 or 24hrs or left unstimulated. Total RNA was extracted from 784 cell samples and sequenced. Analysis of differentially expressed (DE) genes was conducted using edgeR (FDR<0.05), taking into account the disease status, B27 carriage and their interaction term, as well as age, gender, timepoint and sequencing experiment. Functional annotation was performed using ClusterProfileR. Gene regulatory networks were generated based on ontology results.
Results. 308 DE genes were associated with the disease status. Among these, 19 were also found in the disease-B27 interaction term. Remarkably, 1108 genes were associated to B27 independently of the disease status. Dysregulated pathways were primarily related to lipid and sterol biosynthesis and regulation but also to regulation of leukocyte activation and to angiogenesis.
Conclusion. DE genes we identified in relation with disease status and B27 allele and corresponding altered biological pathways may shed new light on the role of B27 and additional genes in SpA pathogenesis.

P75

CENTRAL SENSITIZATION HAS MAJOR IMPACT ON QUALITY OF LIFE IN PATIENTS WITH AXIAL SPONDYLOARTHRITIS

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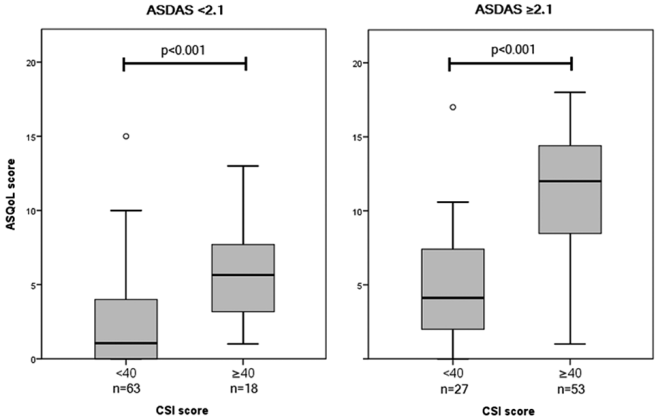
Introduction. Persistent pain has large potential impact on quality of life (QoL). Central sensitization (CS) may explain part of the chronic pain in axSpA. However, the role of CS has only been studied to a limited degree and current axSpA guidelines pay little attention to identification and treatment of CS. Therefore, our aim was to explore the relationship between CS and QoL in patients with axSpA.
Methods. Consecutive outpatients from the Groningen Leeuwarden axSpA (GLAS) cohort completed the Central Sensitization Inventory (CSI; range 0-100) and the AS Quality of Life questionnaire (ASQoL; range 0-18). Multivariable



P75. Fig. 1. ASQoL score in patients with axSpA with CSI score >40 and <40, divided for $ASDAS_{CRP}$ (cutoff 2.1).

linear regression analysis was used to explore the relationship between CSI and ASQoL, correcting for potential confounders.
Results. Of the 178 included axSpA patients, mean CSI score was 38.0±14.1 and 45% scored ≥40, indicating high probability of CS. Mean ASQoL score was 6.0±5.3 and mean $ASDAS_{CRP}$ 2.1±1.0. CSI score ≥40 was significantly associated with higher ASQoL (mean 9.7 vs. 3.3), higher $ASDAS_{CRP}$ (mean 2.6 vs. 1.7), female gender (60% vs. 29%) and more often entheseal involvement (Maastricht AS Enthesitis Score ≥1: 61% vs. 26%). The association between CSI and ASQoL seems independent from $ASDAS_{CRP}$ (Fig. 1). In univariable analysis, CSI score explained a large proportion of the variation in ASQoL (√ASQoL; B=0.06, 95%CI: 0.05-0.07; R^2=0.46). This association remained significant after correction for $ASDAS_{CRP}$, gender, entheseal involvement, comorbidities, symptom duration, smoking status, BMI class and educational level (B=0.04, 95%CI: 0.03-0.05).
Conclusion. Our cross-sectional study in axSpA patients with long-term disease demonstrated that CSI score is strongly related to patient experienced QoL, also after correcting for possible confounders such as disease activity, gender and disease duration. Awareness and treatment of CS has the potential to improve health-related QoL in axSpA patients.

P76

THE PREVALENCE OF INFLAMMATORY BACK PAIN AND HLA-B27 IN A LARGE POPULATION-BASED COHORT IN THE NETHERLANDS

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Introduction. Chronic low back pain (CLBP; back pain >3 months) with onset at age <45 and inflammatory back pain (IBP) are regarded as early presenting and key features of axSpA, and HLA-B27 as its most important genetic risk factor. Despite the increasing number of non-radiographic axSpA diagnoses and the advent of MRI in demonstrating sacroiliitis, the substantial delay in axSpA diagnosis has not improved. The aim of this study was to explore the prevalence of CLBP and IBP in combination with HLA-B27 in the general population.
Methods. The study population consisted of participants of the Lifelines cohort, a large population-based cohort of the Northern region of the Netherlands. Questionnaires included CLBP and European Spondyloarthropathy Study Group (ESSG) IBP criteria. Participants who reported a previous axSpA diagnosis were identified. HLA-B27 haplotypes were imputed from genome-wide SNPs genotyped with the Illumina GSA beadchip-24 v1.0, using the R-package HIBAG with published parameter estimates.
Results. 94.277 Lifelines participants answered the question about CLBP, of which 22.804 (24.2%) participants reported CLBP, CLBP before the age of 45 could be identified in 17.481 (18.6%) participants. Of the 93.665 participants with the ESSG questionnaire data available, 13.514 (14.4%) fulfilled the IBP criteria. HLA-B haplotype could be determined with high prediction accuracy (posterior probability >0.8) in 29.399 Lifelines participants of which 2.279 (7.8%) were HLA-B27+. In the group of HLA-B27+ participants with CLBP (n=373; 23.2%), 238 (14.8%) also fulfilled the ESSG IBP criteria. Only 11 (4.6%) of these participants reported a previous axSpA diagnosis.
Conclusion. In this large Dutch population based cohort, 7.8% were HLA-B27 positive, similar to earlier studies. Considerable underdiagnosis of axSpA may be expected since only a minor proportion of HLA-B27+ participants with CLBP fulfilling the ESSG IBP criteria reported to have been diagnosed with axSpA.

P77

THE DIAGNOSTIC UTILITY OF SERUM INTERLEUKIN 22 IN PATIENTS WITH SUSPECTED AXIAL SPONDYLOARTHRITIS

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Background. There is an unmet need for a reliable biomarker for the diagnosis and differentiation of AxSpA from its multiple mimickers. Serum levels of IL-22, which is intimately involved in the pathogenesis of AxSpA, have been previously found significantly elevated in patients with AxSpA, when compared to healthy individuals or persons with osteoarthritis.
Methods. Consecutive patients with established or suspected AxSpA were enrolled. The patient and disease-related data was acquired from patients' charts and the final diagnosis of definite or probable SpA, or alternative diagnoses was determined for every patient. Serum levels of IL-22 were examined by Quantikine ELISA Human IL-22 Immunoassay and compared between patients' groups.
Results. Serum levels of IL-22 were significantly higher in patients with definite AxSpA (29 patients) compared to patients with alternative diagnoses (14 patients) and healthy volunteers (16 individuals) (p<0.001 for both comparisons). Patients with possible AxSpA had a wide range of data distribution, probably reflecting the heterogeneity of this group. The sensitivity and specificity of the serum levels of IL-22 for the AxSpA diagnosis were 0.68 and 0.86 (95% CI 0.68-0.95), respectively, for the cut-off of 5 pg/ml. In patients with AxSpA, serum IL-22 levels did not correlate with mSASSS, BASDAI, ASDAS indices or serum CRP levels, with all results far away from the level of statistical significance.
Conclusions. Serum IL-22 levels are elevated in patients with AxSpA and can serve as an independent biomarker for the differentiation of AxSpA from its non-inflammatory mimickers.

P78

DIAGNOSING AXIAL SPA BY MULTIDISCIPLINARY TEAM CONFERENCE IN A COHORT OF PATIENTS WITH DISEASE FEATURES ACCORDING TO THE ASAS CRITERIA

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Introduction. In 2009 MRI was included in the Assessment of SpondyloArthritis Society (ASAS) classification criteria and have often been used clinically resulting in a risk of overdiagnosis. The aim of the study was to estimate the prevalence of axial spondyloarthritis (axSpA) in a cohort of clinical patients with low back pain and imaging or biochemical findings suggestive of axSpA using multidisciplinary team (MDT) conferences.
Methods. In 84 patients fulfilling or nearly fulfilling the ASAS criteria, clinical, biochemical and MRI findings at baseline and after 3.5 years were retrospectively evaluated at MDT conferences attended by radiologists and rheumatologists, and MDT consensus diagnoses regarding axSpA were established.
Results. According to the MDT consensus, 25 (30%) of the patients had axSpA at follow-up; 40% and 37% of the individuals, who fulfilled the ASAS criteria at baseline and at follow-up, respectively, had axSpA.
According to the MDT consensus 96% of the patients with axSpA met the ASAS criteria at baseline and 92% at follow-up, respectively.
Conclusions. Approximately one-third of the included patients had axSpA when evaluated at a MDT conference. The ASAS criteria had a low predictive value, but high sensitivity for axSpA, both at baseline and at follow-up. The results emphasize the importance of not using classification criteria as diagnostic criteria.

P79

HLA-B27 GENE DID NOT PROTECT AGAINST COVID-19 IN PATIENTS WITH AXIAL SPONDYLOARTHRITIS – REUMACOV-BRASIL REGISTRY

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Introduction. Some studies have suggested the HLA-B27 gene may protect against infections, as well as it could play a benefit role on the clearance of microorganisms. However, there is no data on SARS-CoV-2 pandemic in spondyloarthritis (SpA) patients.
Aim. To evaluate the impact of HLA-B27 gene positivity on the susceptibility and severity of COVID-19 and disease activity in axial SpA patients.
Methods. The ReumaCoV Brazil is a multicenter, observational, prospective cohort designed to monitor immune-mediated rheumatic diseases patients during SARS-CoV-2 pandemic in Brazil. Axial SpA patients, according to the ASAS classification criteria (2009), with and without (control group) COVID-19 diagnosis were paired to sex and age. Demographic data, managing of COVID-19, comorbidities, clinical characteristics were collected.
Results. From May 2020 to Jan 2021, 269 axial SpA patients were included, 165 (61.3%) with COVID-19 and 104 (38.7%) without COVID-19. Social distancing, smoking, BMI, waist circumference and comorbidities were not significantly different; 134 (75.3%) were on TNF inhibitors. The HLA-B27 positivity was not different between groups (n=45, 73.8% vs. n=38, 73.1%, respectively; p=0.93). Interestingly, no new episodes of arthritis, enthesitis or extra-articular manifestations were reported after the COVID-19. The global death estimation for COVID-19 was 1.9 (95%CI 0.6-4.3).
Conclusions. No significant difference of COVID-19 frequency rate was observed in patients with axial SpA regarding the HLA-B27 positivity status, suggesting a lack of protective effect against the SARS-CoV-2 infection.

P80

CHARACTERISTICS OF THE PATIENTS WITH ANKYLOSING SPONDYLITIS ACHIEVED AXIAL SPONDYLOARTHRITIS REMISSION DUE TO RUSSIAN SPA GROUP DEFINITION

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Introduction. Russian SpA group developed the criteria of axSpA remission(rem) (1). The aim of the study was to evaluate characteristics of AS in pts fulfilled rem criteria.
Methods. Data from North-Western Register were analyzed. Domains recommended by ASAS were collected. Were compared the AS characteristics in pts with ASDAS inactive disease (ADSASid) fulfilled and not fulfilled the Russian rem.
Results. From 1,547 AS pts 346 had ASDAS ≤1.3, 186 had rem. The pts with ASDASid and rem were younger, had less disease duration, lowerASDAS, BASDAI, CRP, TSC, MASES, less MRI sacroiliitis, as compared with total AS population and with ASDASid without rem pts (Table I).
Conclusions. Russian definition of axSpA remission is associated with lower AS activity and MRI sacroiliitis than ASDASid.

P80. Table I. Characteristics of AS patients.

Parameter	AS, n=1,547	ADSASid, n=346	ADSASid rem+, n=186	ADSASid rem-, n=160
Age, years (M±SD)	41.8±11.2	38.3±8.8*	39.0±9.1*	41.3±9.7#
Male, n (%)	1010 (65,3)	141(40.75)*	83 (44.42)*	58 (36.5)*#
Symptom duration, month	523±341	457±398*	487±402*	511±422#
ASDAS	3.3±1.1	1.1±0.08*#	0.7±0.03*	1.2±0.08*#
BASDAI	5.6±2.2	3.8±2.1*#	2.1±1.8*	3.9±0.8*#
TJC	5.5 [1;6]	3.4 [0;4]*#	1[0;1]*	3[0;4]*#
MASES	4 [0;4]	2[1;4]*#	0[0;1]*	2[0;3]*#
NSAIDs, n(%)	1,247 (80)	178 (51)*#	51 (27)*	127 (79)*#
TNFi, n (%)	155 (10)	109 (31.5)*#	80 (43)*	29 (18)*
CRP, mg/l	12.3±6.6	8.1±5.3*#	4.4±3.4*	7.8 ± 8.1*#
MRI SI, %	29	20.5#	0	44#

rem+ - presence of Russian rem; rem - - absence of Russian rem; TJC - tender joints count; MRI – presence of MRI Sacroiliitis due to ASAS definition; *p<0.05 for the difference with AS group; # - p<0.05 for the difference with Russian remi+;.

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P81

MUSCLE DYSFUNCTION IN AXIAL SPONDYLARTHRITIS – THE MYOSPA STUDY

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Aim. To investigate muscle physical properties, strength, mass, and physical performance in axSpA patients and determine the prevalence of sarcopenia.
Methods. A cross-sectional study was conducted on 54 participants: 27 patients with axSpA (meeting the ASAS classification criteria, with symptoms duration ≤10 years), and 27 healthy controls (HC), matched by gender, age and level of physical activity.
Muscle physical properties (stiffness, tone and elasticity) and muscle strength were quantified using a hand-held myotonometer and dynamometer, respectively, in three body segments (trunk, lower and upper limbs). Five-times sit-to-stand (5STS) test was used to measure global strength. Body composition was measured by octapolar multifrequency bioelectrical impedance analysis. Physical performance was measured through gait speed, using a 3D full-body kinematic model. Sarcopenia was defined as low muscle strength (5STS >15 seconds) and low skeletal muscle mass (according to the equipment's reference values). Low physical performance was defined as gait speed ≤0.8 m/s.
Results. AxSpA patients had no significant difference in segmental muscle stiffness, tone and elasticity, compared with HC, although they tended to have higher average trunk stiffness [246.5 (230.5–286.5) vs 232.5 (211.0–293.5), p=0.38]. No participants presented sarcopenia (Table I). Patients with axSpA had lower-

P81. Table I. Comparison of sarcopenia, muscle strength, body composition and physical performance between patients and healthy controls.

	Patients (n=27)		Controls (n=27)		p-value
Sarcopenia, *n* (%) ¥	0		0		-
Low muscle strength (5-times sit-to-stand >15s), *n* (%)	2	(8.3%)	0		0.15
Low skeletal muscle mass, *n* (%)	2	(8.3%)	1	(4.2%)	0.55
Strength					
Trunk (Nm/s)	56.3	(37.6 – 67.2)	57.3	(51.2 – 63.0)	0.67
Upper Limb (Nm/s)	47.6	(40.2 – 73.2)	71.8	(51.9 – 80.5)	**0.02**
Lower Limb (Nm/s)	51.0	(38.5 – 57.1)	59.8	(54.6 – 64.5)	**0.01**
Global - ST5 (seconds)	7.0	(5.9 – 8.9)	5.5	(5.0 – 6.9)	**0.01**
Lean Mass (Kg)					
Trunk	24.9	(21.9 – 27.0)	25.3	(20.4 – 27.6)	0.92
Upper Limb	3.1	(2.56 – 3.5)	3.1	2.3 - 3.5)	0.81
Lower Limb	8.0	(7.2 – 9.5)	9.2	(7.5 – 10.0)	0.15
Global	50.1	(44.5 – 57.8)	54.1	(43.2 – 60.2)	0.59
Fat Mass (Kg)					
Trunk	10.3	(6.3 – 15.9)	8.1	(5.1 – 11.1)	0.05
Upper Limb	1.3	(0.6 – 2.2)	0.9	(0.5 – 1.5)	0.05
Lower Limb	2.9	(1.9 – 4.0)	2.5	(1.6 – 3.4)	0.21
Global	19.8	(12.1 – 29.1)	15.7	(10.1 – 22.2)	**0.04**
Body water (L)					
Trunk	19.6	(17.1 – 21.3)	18.8	(14.4 – 21.1)	0.84
Upper Limb	2.4	(2.0 – 2.7)	2.3	(1.6 – 2.7)	0.38
Lower Limb	6.5	(5.8 – 7.4)	6.5	(5.1 – 7.5)	0.82
Global	39	(34.6 – 44.9)	42.1	(33.5 – 46.8)	0.58
Physical Performance§					
Gait speed (m/s)	0.8	(0.7-0.9)	0.9	(0.8-1.0)	**0.02**
Low gait speed, n (%)	12	(54.5%)	5	(21.7%)	**0.02**

Values are median (25th - 75th percentiles), except otherwise indicated.
Fisher's exact test or chi-square test and Mann-Whitney U-test were used when appropriate.
¥ Available for 48 subjects (24 patients and 24 HC).
§ Available for 45 subjects (22 patients and 23 HC).

global strength, as well as lower strength in the upper and lower limbs, compared to HC, independently of muscle mass, stiffness, tonus and decrement (Table II). Patients had also significantly lower gait speed than HC, adjusting for muscle mass, strength and muscle physical properties.

Discussion. Young axSpA patients with relatively short disease duration presented similar segmental muscle physical properties as HC and had no sarcopenia. Reduced physical performance and strength, with normal mass, indicates a possible muscle dysfunction. Gait characteristics may be a potential biomarker for axSpA diagnosis and monitoring.

P81. Table II. Differences in muscle strength and physical performance between patients with axSpA and HC.

Predictors	Univariate analysis	Multivariate analysis	
	B (95% CI)	Model 1 B (95% CI)	Model 2 B (95% CI)
Upper Limbs Strength			
Muscle mass of UL	**14.71 (6.43; 22.99)**	**14.00 (6.32; 21.70)**	**13.13 (5.40; 20.86)**
Group	**-14.83 (-25.83; -3.84)**	**-14.85 (-25.05; -4.66)**	**-17.02 (-27.33; -6.70)**
Stiffness of UL	0.07 (-0.08; 0.22)	-	0.07 (-0.11; 0.25)
Tonus of UL	1.89 (-3.11; 6.90)	-	0.07 (-6.02; 6.16)
Decrement of UL	-3.80 (-11.92; 4.33)	-	-6.03 (-12.87; 0.81)
Lower Limbs Strength			
Muscle mass of LL	0.87 (-1.45; 3.18)	0.01 (-2.12; 2.15)	0.23 (-2.04; 2.49)
Group	**-11.21 (-17.89; -4.54])**	**-11.83 (-18.67; -4.98)**	**-11.14 (-18.25; -4.04)**
Stiffness of LL	-0.03 (-0.10; 0.04)	-	-0.05 (-0.22; 0.13)
Tonus of LL	-0.64 (-2.36; 1.08)	-	0.33 (-4.11; 4.76)
Decrement of LL	3.31 (-7.98; 14.60)	-	2.44 (-8.56; 13.44)
Trunk Strength			
Muscle mass of T	0.86 (-0.15; 1.87)	0.83 (-0.18; 1.84)	0.79 (-0.20; 1.79)
Group	-4.26 (-12.04; 3.53)	-4.20 (-12.20; 3.81)	-6.05 (-14.18; 2.10)
Stiffness of T	-0.01 (-0.07; 0.05)	-	-0.13 (-0.29; 0.03)
Tonus of T	-0.04 (-2.25; 2.17)	-	4.25 (-1.12; 9.62)
Decrement of T	4.98 (-8.29; 18.25)	-	17.28 (-0.50; 35.06)
Global Strength (5STS)			
Muscle mass	0.01 (-0.08; 0.08)	0.02 (-0.06; 0.09)	0.02 (-0.06; 0.10)
Group	**1.81 (0.53; 3.09)**	**2.00 (0.59; 3.42)**	**1.88 (0.43; 3.33)**
Total stiffness	0.01 (-0.01; 0.01)	-	0.01 (-0.00; 0.03)
Total tonus	0.05 (-0.16; 0.25)	-	-0.18 (-0.66; 0.30)
Total decrement	0.29 (-0.44; 1.02)	-	0.33 (-0.48; 1.13)
Global Physical Performance			
Muscle mass	-0.002 (-0.01; 0.01)	-0.003 (-0.01; 0.01)	-0.002 (-0.01; 0.01)
Group	-0.07 (-0.16; 0.03)	**-0.11 (-0.20; -0.14)**	**-0.11 (-0.21; -0.01)**
Global Strength	-0.007 (-0.03; 0.02)	0.002 (-0.02; 0.02)	0.01 (-0.02; 0.03)
Total stiffness	0.00 (-0.01; 0.00)	-	0.00 (-0.01; 0.01)
Total tonus	-0.01 (-0.02; 0.01)	-	0.01 (-0.03; 0.03)
Total decrement	0.01 (-0.04; 0.06)	-	0.01 (-0.04; 0.05)

Linear Regression Models:
Model 1: adjusted for muscle mass, group and, in case of physical performance, also global strength.
Model 2: adjusted for the same covariates as model 1 plus stiffness, tonus, and decrement.
UL: Upper Limbs. LL: Lower Limbs. T: Trunk. "Group" refers to patients vs. HC (reference group).
p-values less than 0.05 are shown in bold.

P82

DETERMINANTS OF HEALTH RELATED QUALITY OF LIFE IN RHEUMATOID ARTHRITIS AND SPONDYLOARTHRITIS: HOW DO THEY INTERACT FROM A HIERARCHICAL PERSPECTIVE?

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Aim. To assess the hierarchy of outcomes contributing to health-related quality of life (HRQoL) in rheumatoid arthritis (RA) and spondyloarthritis (SpA).

Methods. The COMORA and COMOSPA initiatives are two multicentre cross-sectional studies resulting from an international collaboration which enrolled 7904 consecutive patients with RA and SpA from 26 countries. We analysed data on HRQoL assessed by the EuroQOL-5 Dimension 3-level (EQ-5D-3L) in both databases. The RA and SpA subgroups were assessed separately. In a first exploratory step, linear regression models were used to identify univariable associations between several demographic and clinical variables and EQ-5D-3L. Variables with a *p*-value <0.10 in the univariable analysis were tested in multivariable linear regression models. Subsequently, a decision tree was constructed according to an unbiased hierarchical multivariable analysis using the Chi-square Automatic Interaction Detector (CHAID) method, with EQ-5D-3L as dependent variable.

P82. Table I. Univariable and multivariable linear regression analyses investigating the association between HRQoL (assessed by EQ-5D-3L) and other demographic and clinical variables in the 3920 patients with RA.

Characteristics	B* (95% CI)	p-value	Adjusted B* (95% CI)	p-value
Age	0.000 (-0.001, 0.000)	0.240		
Male gender	0.061 (0.038, 0.083)	<0.001	0.008 (-0.017, 0.033)	0.533
Education, university or equivalent	0.060 (0.049, 0.071)	<0.001	0.001 (-0.013, 0.016)	0.849
BMI	-0.004 (-0.006; -0.003)	<0.001	0.002 (0.000, 0.004)	0.045
Seropositive for RF or ACPA	-0.015 (-0.038, 0.008)	0.191		
Unequivocal radiological erosion	-0.077 (-0.094, -0.059)	<0.001	-0.036 (-0.058, -0.014)	0.001
Current smoking	0.005 (-0.003, 0.013)	0.248		
Current alcohol equal or more than 3 units	0.046 (0.036, 0.055)	<0.001	0.015 (0.004, 0.026)	0.007
DAS28-CRP-3v	-0.084 (-0.090, -0.079)	<0.001	-0.028 (-0.037, -0.019)	<0.001
MHAQ	-0.346 (-0.357, -0.335)	<0.001	-0.216 (-0.247, -0.184)	<0.001
Work productivity loss (overall work impairment / absenteeism plus presenteeism - %)	-0.005 (-0.005, -0.004)	<0.001	-0.003 (-0.003, -0.002)	<0.001
NSAID intake during the last 3 months	-0.022 (-0.040, -0.005)	0.013	0.017 (-0.004, 0.039)	0.115
Current cDMARD	0.048 (0.025, 0.072)	<0.001	0.027 (-0.005, 0.059)	0.099
Current bDMARD	0.017 (-0.002, 0.035)	0.083	-0.005 (-0.028, 0.018)	0.653

*Unstandardized coefficients. Legend: ACPA: anti-citrullinated protein antibody; bDMARDs: biological disease-modifying antirheumatic drugs; BMI: body mass index; cDMARDs: conventional disease-modifying antirheumatic drugs; DAS28-CRP-3v: Disease Activity Score 28-CRP-3 variables; EQ-5D-3L: EuroQOL-5 Dimension 3-level; MHAQ: Modified Health Assessment Questionnaire; NSAID: Nonsteroidal anti-inflammatory drug; RA: rheumatoid arthritis; RF: rheumatoid factor.

P82. Table II. Univariable and multivariable linear regression analyses investigating the association between HRQoL (assessed by EQ-5D-3L) and other demographic and clinical variables in the 3984 patients with SpA.

Characteristics	B* (95% CI)	p-value	Adjusted B* (95% CI)	p-value
Age, years	-0.002 (-0.003, -0.002)	<0.001	-0.002 (-0.003, -0.001)	0.001
Male gender	0.105 (0.083, 0.127)	<0.001	0.024 (0.002, 0.046)	0.036
Education, university or equivalent	0.056 (0.041, 0.072)	<0.001	-0.017 (-0.033, -0.001)	0.041
BMI	-0.011 (-0.013, -0.009)	<0.001	-0.001 (-0.003, 0.001)	0.593
HLA-B27 positive	0.079 (0.052, 0.105)	<0.001	0.023 (0.000, 0.046)	0.047
Sacroiliitis on pelvic X-rays	0.018 (-0.006, 0.043)	0.144		
Sacroiliitis on MRI (ASAS definition)	-0.013 (-0.044, 0.019)	0.425		
Current smoking	-0.007 (-0.016, 0.001)	0.104		
Current alcohol equal or more than 3 units	0.037 (0.027, 0.047)	<0.001	0.009 (-0.001, 0.018)	0.067
ASDAS-CRP	-0.197 (-0.205, -0.189)	<0.001	-0.064 (-0.077, -0.052)	<0.001
MHAQ	-0.508 (-0.521, -0.495)	<0.001	-0.330 (-0.361, -0.298)	<0.001
Work productivity loss (overall work impairment / absenteeism plus presenteeism - %)	-0.006 (-0.007, -0.006)	<0.001	-0.002 (-0.003, -0.002)	<0.001
NSAID intake during the last 3 months	-0.116 (-0.139, -0.094)	<0.001	-0.046 (-0.067, -0.024)	<0.001
Current cDMARD	-0.057 (-0.079, -0.035)	<0.001	-0.006 (-0.028, 0.015)	0.568
Current bDMARD	-0.027 (-0.049, -0.006)	0.014	-0.038 (-0.059, -0.017)	<0.001

*Unstandardized coefficients. Legend: ASDAS-CRP: Ankylosing Spondylitis Disease Activity Score; bDMARDs: biological disease-modifying antirheumatic drugs; BMI: body mass index; cDMARDs: conventional disease-modifying antirheumatic drugs; EQ-5D-3L: EuroQOL-5 Dimension 3-level; MHAQ: Modified Health Assessment Questionnaire; NSAID: Nonsteroidal anti-inflammatory drug; SpA: spondyloarthritis.

Results. Data on 3920 RA and 3984 SpA patients were analysed. In the RA subgroup HRQoL was significantly associated with modified Health Assessment Questionnaire (MHAQ) [adjusted (adj) B=-0.216, (95% confidence interval (CI)=(-0.247,-0.184)], Disease Activity Score 28 (DAS28)-CRP-3 variables [adjB=-0.028, 95%CI=(-0.037,-0.019)], work productivity loss [adjB=-0.003, 95%CI=(-0.003,-0.002)], presence of unequivocal radiological erosion [adjB=-0.036, 95%CI=(-0.058,-0.014)], current alcohol consumption ≥3 units per day [adjB=0.015, 95%CI=(0.004,0.026)] and body mass index (BMI) [adjB=0.002, 95%CI=(0.000,0.004)] (Table I). In the SpA subgroup HRQoL was significantly associated with MHAQ [adjB=-0.330, 95%CI=(-0.361,-0.298)], Ankylosing Spondylitis Disease Activity Score (ASDAS) [adjB=-0.064, 95%CI=(-0.077,-0.052)], work productivity loss [adjB=-0.002, 95%CI=(-0.003,-0.002)], current NSAID treatment [adjB=-0.046, 95%CI=(-0.067,-0.024)], current bDMARD treatment [adjB=-0.038, 95%CI=(-0.059,-0.017)], age [adjB=-0.002, 95%CI=(-0.003,-0.001)], male gender [adjB=0.024, 95%CI=(0.002,0.046)], university education [adjB=-0.017, 95%CI=(-0.033,-0.001)] and HLA-B27 positivity [adjB=0.023, 95%CI=(0.000,0.046)] (Table II). The decision tree revealed MHAQ as the first variable with the most discriminative power on EQ-5D-3L, followed by work productivity loss and disease activity, both in RA and SpA patients.

Conclusions. Disability is a major contributor to HRQoL measured by EQ-5D-3L, both in RA and SpA patients. Disease activity and work productivity loss also play key roles in determining the level of HRQoL in these two conditions.

P83

IDENTIFYING TRAJECTORIES OF RADIOGRAPHIC SPINAL DISEASE IN ANKYLOSING SPONDYLITIS

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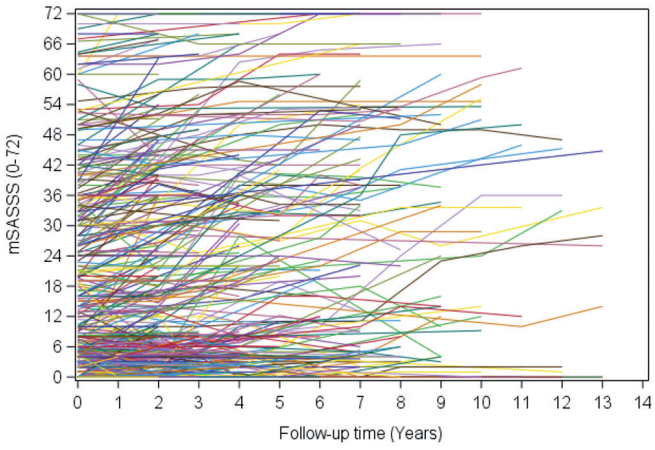
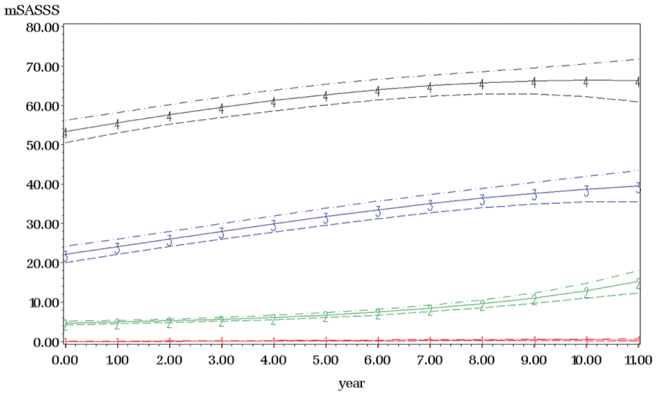
Introduction. Little is known about the natural history of spinal disease in Ankylosing Spondylitis (AS). Our objective was to identify distinct patterns of change in vertebral involvement over time and to identify associated clinical factors.
Methods. Data were analyzed from the Prospective Study of Outcomes in Ankylosing Spondylitis (PSOAS) cohort. Patients met modified New York Criteria for AS, and had ≥2 sets of radiographs scored by modified Stoke Ankylosing Spondylitis Spinal Score (mSASSS) read by local-rheumatologist and central-radiologist between 2002-2017. Group-based trajectory modeling (GBTM) was used to classify patients into distinct groups of longitudinal mSASSS considering sociodemographic and clinical variables. The optimal trajectory model and number of trajectories was selected using Nagin's Bayesian information Criteria (BIC).
Results. A total of 561 patients with 1618 radiographs were analyzed (Fig. 1). The optimum number of trajectory groups identified was four (BIC -4062). Groups were categorized as: Non-progressors (n=204, 37% of total), late-progressors (n=147, 26%), early-progressors (n=107, 19%) and rapid-progressors (n=103, 18%) (Fig. 2). Baseline predictors associated with higher spinal disease burden groups included: male, gender, longer disease duration, and smoking history. In addition, elevated time-varying C-reactive protein (eCRP) levels were positively associated with higher disease progression groups and time-varying anti-TNF use was associated with decreased mSASSS progression in the rapid-progressor group.
Conclusions. GBTM identified 4 major patterns of spinal disease progression in the PSOAS cohort. Male gender, longer disease duration, eCRP and smoking were associated with higher spinal disease groups. Independent confirmation in other AS cohorts is needed to confirm these radiographic patterns.



P83. Fig. 1. Individual patient mSASSS scores over time.
Time in years is along the X-axis and total Modified Stokes Ankylosing Spinal Score is along the Y-axis. Each individual line (n=561) represents a patient in the PSOAS cohort from time in cohort entry with all complete mSASSS scores included with at least 2 sets of radiographs.



P83. Fig. 2. Longitudinal mSASSS trajectory groups.
Time in years is along the X-axis and total Modified Stokes Ankylosing Spinal Score is along the Y-axis. The solid line represents the estimated mean with dotted lines representing the 95% confidence Interval. Trajectory groups from this patient cohort (n=561) include are: 1(Red Line) Non-Progressors, Group 2(Green Line) Late Progressors, Group 3 (Blue Line) -Early progressors and Group 4 (Black Line) Rapid Progressors. Including adjustments included: time-variant (Tumor necrosis factor inhibitor use and abnormal C-reactive protein) and time-invariant risk-factors (*e.g.* gender, smoking, and disease duration).

P84

SERUM IGG-UNDERGALACTOSYLATION REFLECTS CUMULATIVE EXPOSURE TO SYSTEMIC INFLAMMATION IN SPONDYLOARTHRITIS PATIENTS

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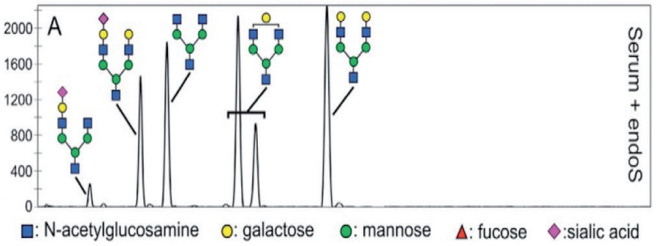
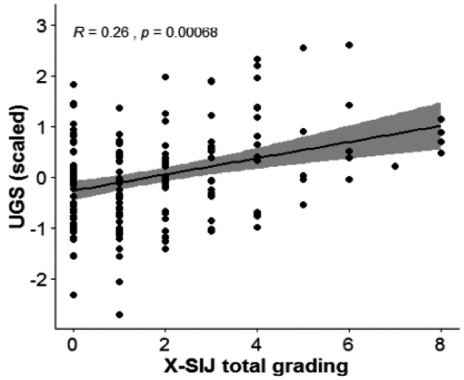
Introduction. IgG glycosylation patterns are subject to specific alterations (i.e. de-galactosylation) in chronic inflammatory diseases. Therefore it was hypothesized that IgG-glycan profiles could serve as a surrogate marker for long-standing inflammation in SpA patients.
Methods. Serum samples from SpA patients were collected at baseline inclusion in Be-Giant. IgG Fc N-glycans were released directly in whole serum by endo-β-N-acetyl-glucosaminidase (EndoS), fluorescently labeled with ATPS and analyzed by capillary electrophoresis, rendering glycan profiles with six peaks (Fig. 1). The relative upregulation of non-galactosylated glycans was normalized to the total peak height, represented by the undergalactosylation score (UGS). Baseline radiographs (X-SIJ) and MRI of the sacroiliac joints (SIJ) were assessed for sacro-iliitis (fulfillment of the modified New York criteria; grading 0-4) and for inflammatory lesions according to the SPARCC method respectively.
Results. Glycan profiles were obtained from 376 SpA patients. UGS was independently associated with ASDAS-CRP (β1=0.15, p=0.006) and BASFI (β1=0.44, p=0.002) but not with BASDAI (β1=0.12, p=0.34). UGS showed a weak correlation with CRP (Rs=0.30, p<0.001) and ESR (Rs=0.27, p<0.001). In axial SpA, UGS was significantly higher in patients with ankylosing spondylitis compared to non-radiographic axial SpA (OR=2.41, p<0.001) and showed an independent association with the total grading of the SIJ (β1=0.44, p=0.01, Fig. 2) and SPARCC score (β1=2.64, p=0.002). All models were adjusted for age, gender, BMI, CRP, anti-TNF treatment and symptom duration.



P84. Fig. 1. Example of a serum IgG-specific glycan profile



P84. Fig. 2. Correlation between UGS and X-SIJ total grading of sacroiliitis.

Conclusions. Serum IgG undergalactosylation is independently associated with disease activity and functional impairment in SpA patients. UGS was significantly higher in advanced compared to early-stage axial disease and therefore may reflect the cumulative exposure to systemic inflammation.

P85

SPONDYLOARTHRITIS AND ITS SUBTYPES PREVALENCE IN THREE EUROPEAN COUNTRIES

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Introduction. Different spondyloarthritis (SpA) prevalence estimates were reported in Europe.
Aim. To estimate prevalence of SpA and subtypes of SpA in three European countries.
Materials and Methods. A screening detection telephone Questionnaire, covering self-reported diagnosis, classification criteria for SpA (ESSG 1991) and personal and family history for SpA, was translated, trans-culturally adapted and valided in France, Lithuania and Serbia. It was used by telephone on a random sample of population in three countries in a first phase; suspected cases were confirmed by medical history or by rheumatology examination in a second phase. Prevalence estimates were age- and sex-standardised to European population.
Results. In a detection phase 29,442 persons were screened. After exclusion of second home, place of work and public home numbers, 27,442 people were interviewed by telephone: 14,671 in France, 6,558 in Lithuania and 6,213 in Serbia (response rate 64.7%, 64.7% and 63.3%, respectively) (1, 2, 3). SpA was confirmed with 29 people in France (2 newly diagnosed), 27 in Lithuania (7 newly diagnosed) and 16 in Serbia (5 newly diagnosed). Standardised SpA prevalence was 0.30% (95% Confidence Interval: 0.19-0.41) for France, 0.89% (95%CI: 0.78-1.00) for Lithuania and 0.35% (95%CI: 0.17-0.54) for Serbia. SpA prevalence was equally presented by gender for France and Serbia. The prevalence of SpA subtypes is given in Table I.
Conclusion. SpA prevalence was higher in North-Eastern Europe than in its Western and Middle part. Previously non-diagnosed SpA cases were found in 6.9% in France, 25.9% in Lithuania and 31.2% in Serbia.

P85. Table I. Ankylosing spondylitis, Psoriatic arthritis, Reactive arthritis and Undifferentiated spondiloarthritis prevalence, % (95% confidence interval-CI)* for France, Lithuania and Serbia, older than 18 years.

		Male	Female	All
Ankylosing Spondylitis	France	0.12 (0.02-0.22)	0.09 (0.02-0.16)	0.10 (0.05-0.16)
	Lithuania	0.29 (0.04-0.60)	0.32 (0.13-0.50)	0.30 (0.27-0.34)
	Serbia	0.15 (0.00-0.36)	/	0.07 (0.01-0.14)
Psoriatic arthritis	France	0.09 (0.00-0.18)	0.11 (0.03-0.19)	0.10 (0.04-0.16)
	Lithuania	0.38 (0.04-0.71)	0.14 (0.01-0.27)	0.26 (0.20-0.32)
	Serbia	0.04 (0.00-0.11)	0.11 (0.01-0.22)	0.08 (0.00-0.15)
Reactive arthritis	France	/	/	/
	Lithuania	0.15 (0.13-0.17)	0.20 (0.18-0.23)	0.18 (0.07-0.29)
	Serbia	0.12 (0.00-0.28)	0.07 (0.00-0.17)	0.09 (0.00-0.16)
Undifferentiated spondyloarthritis	France	0.03 (0.00-0.08)	0.04 (0.01-0.08)	0.04 (0.00-0.07)
	Lithuania	0.22 (0.00-0.72)	0.03 (0.00-0.08)	0.12 (0.09-0.16)
	Serbia	0.13 (0.00-0.31)	0.04 (0.00-0.09)	0.02 (0.00-0.02)

* standardised by age-and sex to European population.
Note: Prevalences are considered in a similar range if their 95% CIs overlap

Funding. Study was supported by a European League Against Rheumatism (EULAR) grant, and endorsed by the EULAR Standing Committee of Epidemiology and Health Service Research (SCEHSR).

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P86

DOES THE LEVEL OF MATRIX METALLOPROTEINASE-3 CORRELATE WITH INFLAMMATION IN ANKYLOSING SPONDYLITIS?

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Introduction. Matrix metalloproteinase-3 (MMP-3), which is present in synovial tissues as a zymogen and is activated by plasmin, is currently considered to be one of the key mediators of joint destruction.
It was previously shown that the activity of ankylosing spondylitis (AS) correlates with the MMP3 level and may be regarded as a treatment response. MMP3 was also found to be an independent predictor of structural damage progression in patients with ankylosing spondylitis. However, the results of the study of MMP3 are heterogeneous and require further research.
Objective. The objective of the study is to examine the correlation between the MMP level in AS with indicators of disease activity.
Materials and Methods. 72 patients with AS (according to the data of mNYC 1984) (37 male, 35 female) were consequently admitted to the RIR named after V.A. Nasonova from February to November 2020, 86.1 % carried HLA-B27, the mean age was 39.5 (±13.3) years, the mean age at disease onset was 23.8 (±10.8) years.Laboratory findings were as follows: CRP 8 mg/L [3; 32], ESR 16 mm/h [7.5; 38.5], Me [25th;75th percentile]. The assessment was carried out according to the ASAS recommendations. In addition to the standard assessment practice, MMP3 in all patients was measured by ELISA test method with commercial serum kits using Tecan Sunrise (Switzerland) microplate reader. SAA was assessed by nephelometry using commercial reagent kits.
Results and Discussion. 72 patients had median MMP3 of 42 ng/mL [18.2; 137.3] The comparison of the average values of MMP3, CRP, ESR levels in male and female patients did not reveal any significant difference. MMP3 in fact does not correlate with BASDAI and ASDAS-CRP (r = 0.08 and r = 0.03) and poorly correlates with ESR and CRP (r = 0,3 and r = 0,48).
Patients with a high MMP3 level (male patients with > 50ng/mL and female patients with >30ng/mL) had a higher level of CRP and ESR, as well as a significantly higher rate of peripheral arthritis and coxitis, than patients with normal MMP3 values. The indicators are characterized in Table I.
Conclusion. The MMP3 level correlated poorly with AS, ESR, and CRP activity indices. MMP3 levels were also noted to be higher in patients with high laboratory findings, peripheral arthritis and coxitis, while enthesitis predominated in patients with normal MMP3 values.

P86. Table I.

Indicator	MMP3, above normal	MMP3, normal	*p*
CRP	25.4 [5.6;42.7]	5.8 [2.7;19.8]	$p = 0.01$
ESR	22 [11;59]	11 [5;23]	$p = 0.003$
Peripheral arthritis	73 %	48.5 %	$p = 0.03$
Coxitis	75.6 %	62.8 %	$p = 0.2$
Enthesitis	67.5 %	85.7 %	$p = 0.07$

P87

HLA-B ALLELES IN A COHORT OF PATIENTS WITH INFLAMMATORY BACK PAIN

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Introduction. HLA-B*27 remains one of the most impactful risk factors described in Spondyloarthritides (SpA). Nevertheless, other HLA-B alleles have also been incriminated in the development of these diseases.
Materials and Methods. We conducted a prospective observational study of HLA-B alleles on patients with inflammatory back pain who had no prior diagnosis of SpA.
Results. The study cohort included 76 patients with recent-onset inflammatory back pain. Within 6 months from the initial presentation, 23 patients met the New York criteria for Ankylosing Spondylitis (AS, 30.3%), 16 had Non-Radiographic Axial Spondyloarthritis (21.1%), 7 were shown to have Psoriatic Arthritis (9.2%), 2 had Reactive Arthritis (2.6%), 16 had Undifferentiated Spondyloarthritis (21.1%), while 12 (15.8%) did not meet sufficient criteria for SpA during the follow-up period. HLA-B*27 (in association with other HLA-B alleles) was identified in 20 subjects (26.3%) and was significantly connected to radiographic sacroiliitis (p=0.002), uveitis (p=0.019) and AS diagnosis (p=0.007). Moreover, HLA-B*13 was correlated with dactylitis (p=0.002), HLA-B*58 with arthritis (p=0.020), whereas HLA-B*07 was associated with sacroiliitis (p=0.009) in the study population. Following the exclusion of HLA-B*27+ patients, HLA-B*18 was correlated with peripheral involvement (p=0.038). Furthermore, HLA-B*35 displayed a significant association with enthesitis in patients that did not meet sufficient criteria for SpA (p=0.018).
Conclusions. Several other particular HLA-B alleles, other than HLA-B*27, tend to also demonstrate significant correlations to clinical characteristics in SpA patients.

P88

MOLECULAR PROFILING OF RADIOGRAPHIC AXIAL SPONDYLOARTHRITIS PATIENTS REVEALS AN ASSOCIATION BETWEEN INNATE AND ADAPTIVE CELL POPULATIONS AND THERAPEUTIC RESPONSE TO ADALIMUMAB

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Introduction. The response to treatment in spondylarthropaties is heterogeneous. It is important to find tools that might help clinicians to decide what is the best available therapeutic option for each patient. The aim is identifying molecular biomarkers, differentiating good and non-responders to TNFi.
Methods. Whole-blood mRNA and plasma proteins were measured in a cohort of biologic naïve r-axSpA patients (n=35), pre and post (14 weeks) TNFi treatment using adalimumab. Response to treatment was categorized according to ASAS20. Results of differential expression analysis were used to identify the most enriched pathways and in predictive models to distinguish responses to TNFi.
Results. We found genes and proteins robustly differentially expressed between baseline and week 14 in responders, including the GWAS AS-associated genes. CRP and HP proteins showed strong and early decrease in the plasma of r-axSpA patients, while a cluster of apolipoproteins showed an increased expression at week 14. Good responders to TNFi treatment have higher expression of innate immunity genes at baseline, and lower expression of markers associated with adaptive immunity, particularly B-cells. A logistic regression model incorporating ASDAS-CRP, gender and *Gene x*, the top differentially expressed gene at baseline between responders and non-responders, enabled prediction to TNFi in our cohort (AUC=0,97).
Conclusion. Differences in disease activity and immune cell type composition at baseline are a major contributor to response to Adalimumab. Alternatively, a model including clinical and gene expression could be considered.

P89

ROLE OF HLA-B27 CARRIERSHIP IN PERIPHERAL SPONDYLOARTHRITIS: DATA FROM ASAS PERSPA STUDY

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Background. HLA-B27 is well known for its role in conferring susceptibility to spondyloarthritis (SpA), and several studies evaluating its association to axial SpA phenotype have been published. However, there is few evidence about its influence in patients affected with peripheral SpA (pSpA). In this sense we find ASAS perSpA registry suitable for this purpose, as it is a wide registry that worldwide includes a high number of pSpA patients.
Objective. To identify phenotypical differences in pSpA patients regarding HLA-B27 status.
Method. Data from all patients fulfilling ASAS pSpA criteria with HLA-B27-testing result available included in the ASAS perSpA study (an observational and cross-sectional study) were used for this analysis. Socio-demographic and disease characteristics were collected, and presence of obesity and concomitant fibromyalgia was also recorded. A descriptive and comparative analysis was performed between HLA-B27 positive and negative patients, using a simple logistic regression for all variables to assess their association to HLA-B27 positivity. Results were considered significant when p<0.05. A multivariate model was also performed including significant (p<0.1) and the most relevant clinical variables in agreement of medical criteria.

P89.Table I. Descriptive and comparative analysis between HLA-B27 positive and negative pSpA patients.

	HLA-B27+ (n=118)		HLA-B27- (n=68)		
	N/mean	%/SD	N/mean	%/SD	*p*
Current smoking or less than 3 years since stop	19	16,1%	44	26,3%	**0,042**
Current alcohol consumption (< or >= 3units/day)	27	22,9%	57	34,1%	**0,041**
Obesity (BMI >30)	14	11,9%	44	26,3%	**0,003**
Men	65	55,1%	83	49,4%	0,344
Family history	44	37,3%	52	31,0%	0,265
Axial involvement	62	52,5%	42	25,0%	**<0.001**
Radiographic sacroilitis (AS mNY criteria fulfillment)	30	28,3%	25	16,8%	**0,029**
Psoriathic arthritis	23	19,5%	112	72,6%	**<0.001**
Reactive arthritis	5	4,2%	3	1,8%	0,229
IBD arthritis	1	0,9%	8	4,8%	0,098
Juvenile SpA	1	0,9%	0	0,0%	0,987
other pSpA	4	3,4%	2	1,2%	0,221
Mono/oligoarticular pattern	59	54,6%	76	51,0%	0,566
Root joint involvement	52	44,1%	54	32,1%	**0,04**
Intermitent course	49	45,4%	79	53,0%	0,227
Tarsitis	22	18,6%	16	9,5%	**0,028**
Enthesitis	62	52,5%	69	41,1%	0,056
Dactylitis	31	26,3%	51	30,4%	0,452
Peripheral structural damage	9	7,6%	41	24,4%	**<0.001**
Psoriasis	21	17,8%	125	74,4%	**<0.001**
AAU	21	17,8%	7	4,2%	**<0.001**
IBD	2	1,7%	13	7,7%	**0,039**
Fibromyalgia	15	13,2%	43	26,7%	**0,008**
Age (y)	42,7	14,8	52,2	13,4	**<0.001**
Age onset (y)	33,9	13,7	38,3	14,5	**0,013**
Age at dx (y)	38,4	14,3	45,9	13,7	**<0.001**
Dx delay (m)	4,7	8,2	7,7	9,8	**0,009**
Disease duration (y)	9,06	10,2	14,2	11,6	**<0.001**
BASDAI	3,9	2,2	4,4	2,4	0,06
BASFI	2,9	2,6	3,3	2,8	0,146
CRP	16,9	25,1	12	27,3	0,148
ASDAS-CRP	2,7	1,2	2,7	1,1	0,876
AAU number of episodes	6,8	8,4	2,1	1,7	0,265

*BMI: Body Mass Index; AS: Ankylosing Spondylitis; mNY: modified New York; AAU: acute anterior uveitis; IBD: inflammatory bowel disease, BASDAI: Bath Ankylosing Spondylitis Disease Activity Index; BASFI: Bath Ankylosing Spondylitis Functional Index, CRP: C-Reactive Protein; ASDAS: Ankylosing Spondylitis Disease Activity Score.

Results. Among the 4465 patients included in the registry, 555 fulfilled ASAS pSpA criteria and of them 286 had the HLA-B27 typing available. HLA-B27 was positive in 118 (41.3%) and negative in 168 (58.7%). Results are listed in Table I. No statistically significant difference was observed for gender distribution (males 55.1% in HLA-B27 positive vs 49.4% in HLA-B27 negatives). Compared to HLA-B27 negative patients, HLA-B27 positive patients were significantly younger, presented a younger disease onset, had significantly higher prior axial involvement, radiographic sacroiliitis and higher root joint involvement. On the other hand, HLA-B27 negative patients showed longer disease duration with a higher diagnosis delay. Around half of the patients in both groups showed a mono or oligoarticular pattern without differences regarding HLA-B27 status, however, peripheral joint damage was significantly higher in HLA-B27 negative patients. Also, psoriatic arthritis (PsA) was higher in HLA-B27 negative patients. Regarding extra-musculoskeletal manifestations (EMM), psoriasis and inflammatory bowel disease (IBD) were more frequent in HLA-B27 negative patients compared to positive ones, and acute anterior uveitis (AAU) was significantly more frequent in HLA-B27 positive patients without differences in number of AAU episodes lifelong. Finally, obesity and concomitant fibromyalgia were both more common in HLA-B27 negative patients compared to those with HLA-B27 positive. No significant differences were found for the rest of variables evaluated. In the multivariate analysis, age at diagnosis (OR 0.96, CI95% 0.94-0.98), disease duration (OR 0.94, CI95% 0.90-0.99), diagnosis delay (OR 1.07 CI95% 1.0-1.14), PsA (OR 0.0.6, CI95% 0.03-0.12), IBD related arthritis (OR 0.05 CI95% 0.01-0.2) and AAU (OR 3.18, CI95% 1.06-10.4) were the most important variables independently associated to HLA-B27 status.
Conclusion. Presence of HLA-B27 in pSpA patients was associated to a higher axial and root joint involvement, an earlier disease onset and presence of AAU, but not to other EMM that were higher in HLA-B27 negative patients.

P90

FREQUENCY AND ANATOMIC DISTRIBUTION OF MAGNETIC RESONANCE IMAGING LESIONS IN THE SACRO-ILIACJOINTS OF HEALTHY SUBJECTS AND PATIENTS WITH SPONDYLOARTHRITIS

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Background. Lesions detected by magnetic resonance imaging (MRI) of the sacroiliac joints are critical to the diagnosis of non-radiographic axial spondyloarthritis. However, bone marrow edema (BME), usually observed in patients with spondyloarthritis (SpA) may be encountered in other conditions. Moreover, structural lesions of the sacroiliac joint, such as erosions and fat metaplasia, may be present in healthy subjects.
Aim. To evaluate and compare the frequency and location of lesions (BME, subchondral condensation, fat metaplasia, erosions and ankylosis) on MRIs of the sacroiliac joint of healthy individuals and patients with spondyloarthritis.
Methods. This is a retrospective study including 200 patients, each having received an MRI of the sacroiliac joints in coronal section and in T1 and Semi-coronal STIR sequences. Two experienced readers evaluated the whole set of images. We subdivided a sacroiliac joint into three segments, upper, medium and lower along the cranio-caudal axis. Within the middle segment, we retained 3 portions: anterior, intermediate, posterior along the ventro-dorsal axis. Overall, one sacroiliac joint contained five quadrants on the iliac side and five quadrants on the sacral side.
Results. 200 patients (62% female), 96 SpA (mean age 37.4±11.8 years, 48% HLA-B27+), 104 controls (mean age 39.9±11.6 years, 11% HLA-B27+). Of the 96 SpA, 62 (65%) had inflammatory buttock pain compared to 26 (25%) in controls. BME was seen in 62 (65%) SpA mainly in the iliac quadrant of the intermediate middle segment and in 21 (20%) controls predominantly in the antero-middle quadrant. Subchondral condensation occurred in 45% of controls, mostly in the antero-middle quadrant and in 36% of SpA. Fat metaplasia was present in 35% of SpA and 23% of controls. Erosions were seen in 31% of controls and in 61% of SpA.
Conclusion. In this large cohort, we observed a significant frequency of inflammatory but also structural lesions on MRIs of sacroiliacs joints from healthy patients.

P91

PREDICTIVE CAPACITY FOR VERTEBRAL FRACTURE OF THE TRABECULAR BONE SCORE IN PATIENTS WITH AXIAL SPONDYLOARTHRITIS

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Introduction. In axial spondyloarthritis (axSpA) the risk of vertebral fracture (VF) is increased, not always corresponding with the values of bone mineral density (BMD). One possible explanation is that syndesmophytes interfere with these values. We consider whether the evaluation of trabecular microarchitecture by the Trabecular Bone Score (TBS) may be an advantage to estimate the risk of fracture.
Objectives. To estimate the prevalence of VF in patients with axSpA, assess the diagnostic accuracy of TBS and BMD for VF and the influence of syndesmophytes, and to analyze the correlation between BMD and TBS in lumbar spine.
Methods. Cross-sectional study. Consecutive sampling. Lunar Prodigy Pro™ densitometer, TBS iNsight® 2.2. Radiology. SPSS 22.0 and OpenEpi softwares.
Results. 84 patients were included, 60 men and 24 women, with a mean age of 59 years (± SD 13). 51.2% had lumbar syndesmophytes. The prevalence of VF was 13.7%, 95 CI (7.8-22.9).
Regarding the influence of syndesmophytes on TBS and BMD values, we found differences in lumbar BMD (p=0.01) but not in total hip and femoral neck BMD (p=0.2 and 0.3 respectively) nor in TBS (p=0.1).
No correlation was observed between TBS and lumbar BMD in patients with syndesmophytes, while a moderate correlation (r=0.4, p=0.02) was observed in those without syndesmophytes. In the multivariate analysis, just TBS showed association with VF (p=0.02).
Regarding the predictive capacity of VF, TBS showed a higher sensitivity than BMD (55.6% versus 18.2% and 30% of spine and hip BMD respectively), with comparable specificity (85.3% versus 91.3% and 85.1% of spine and hip BMD respectively).
Conclusions. Syndesmophytes distort the ability of BMD to predict VF. TBS seems to help in predicting more accurately the risk of fractures in this population.

P92

DESCRIPTION OF SACROILIAC CT FINDINGS IN PATIENTS WITH ANKYLOSING SPONDYLITIS AGED OVER 50 YEARS: PRELIMINARY RESULTS OF THE CASIAGE STUDY

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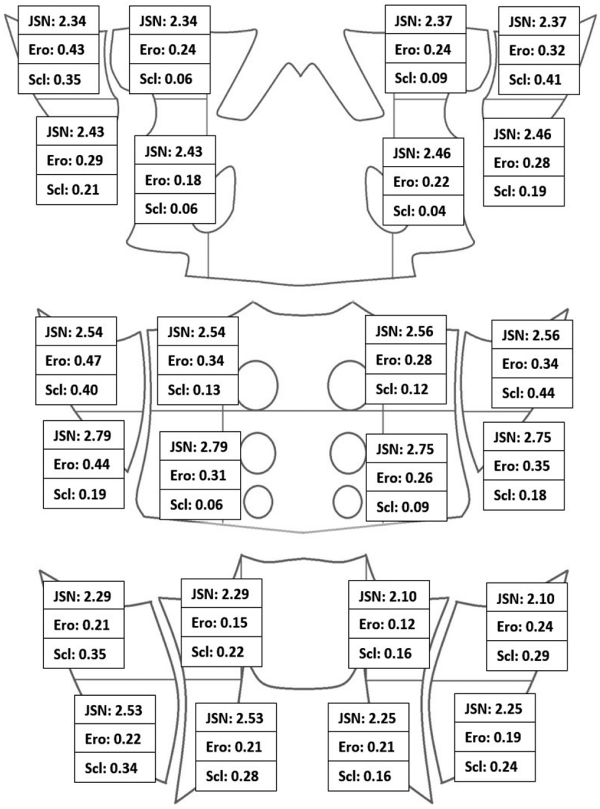
Aim. To describe sacroiliac (SI) joint CT characteristics in patients with ankylosing spondylitis (AS), aged 50 years or older.
Methods. An observational, cross sectional study was performed using medical records of patients with AS over 50 years with CT including SI joints. For each patient, CT was interpreted using a score previously used by Diekhoff, dividing each SI joint into 12 regions, for each of which joint space narrowing (JSN), erosions (Ero), and sclerosis (Scl) are assessed. Intra-articular gas and diffuse idiopathic skeletal hyperostosis (DISH) lesions for each region were recorded.
Results. A total of 66 patients were included. Mean (SD) age was 65.10±10.59 with a mean duration of disease of 22.87±14.95 years. 60% male, and 87 % HLA-B27 positive. 40% had a bamboo spine. CT findings are described in Table I. The vast majority of patients have a positive JSN score but significant erosions are found in only a minority of cases. This is partly explained by the fact that 55.9% of the patients had at least one complete bilateral ankylosis (and therefore no erosions) on one of the three slices studied. Bilateral anklylosis was associated with a longer duration of disease (p<0.001) and presence of bamboo spine (p<0.001). Also noteworthy is the low proportion of DISH compared to the general population in this age group, which is 15-25%. Factors associated with a higher total CT score were male sex (p=0.017), longer duration of disease (p<0.001), tobacco use (p=0.033), presence of bamboo spine (p=0.004), absence of DISH (p=0.045) and absence of intra-articular gas (p<0.001). The distribution of lesions appeared to be homogenous over all 24 regions studied (Fig. 1).
Conclusion. CT findings in AS patients over 50 are mostly represented by changes in joint space, with bilateral ankylosis present in half of the patients. AS appears to be a protective factor for DISH.



P92. Fig. 1.

P93

LIMITATIONS OF THE USE OF MAGNETIC RESONANCE IMAGING IN EVALUATION OF THE BIOLOGICAL TREATMENT EFFECTIVENESS IN LATE STAGE OF AXIAL SPONDYLOARTHRITIS

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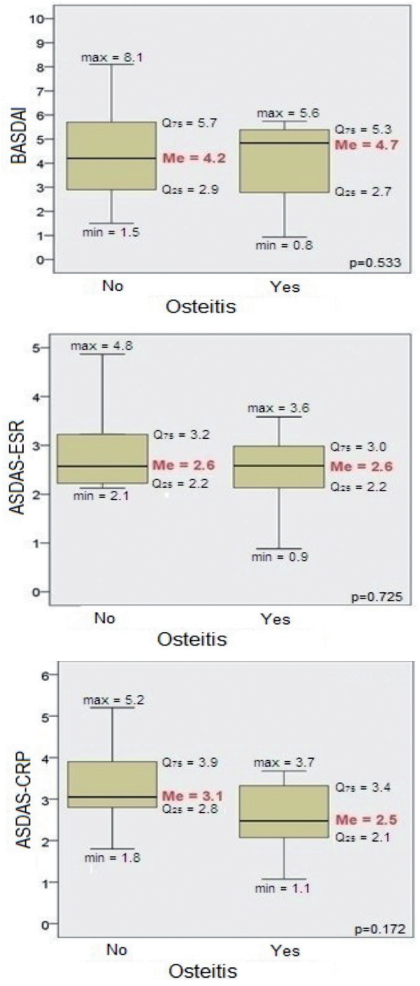
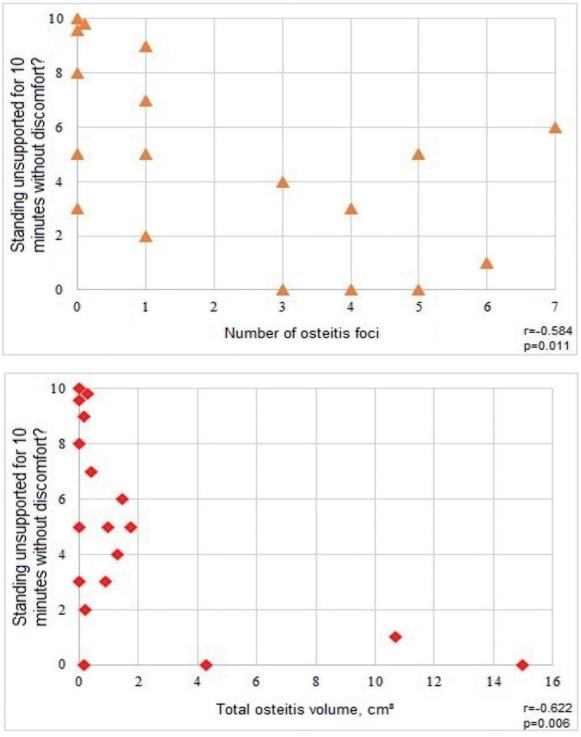
Introduction. The widespread introduction of magnetic resonance imaging (MRI) into clinical practice is accompanied by revolutionary changes in the understanding of the pathogenesis and management of patients with axial spondyloarthritis (axSpA). The diagnostic value of MRI for in non-radiographic stage of the disease is generally accepted. However, the use of MRI for monitoring the effectiveness of therapy is still unclear.
The aim of our study was to correlate clinical features and maintenance of osteitis in patients with axSpA receiving biologic treatment.
Materials and Methods. The study included 39 patients: male - 29 (74.3%), age 41.0 [34.0; 48.0], HLA-B27 positive - 32 (82.1%), late/advanced stage - 24 (61.5%)/15 (38.5%). All patients received biological treatment at least 6 months (1.5 [1.0; 4.5] years): tumor necrosis factor inhibitors (30 pts) and inhibitor of interleukin-17 (9 pts). MRI of the sacroiliac joints (SIJ) and whole spine were performed for all patients with quantity and total volume (cm^3) of osteitis estimation. ASDAS-ESR/CRP, BASDAI, BASFI were evaluated for all patients.
Results. There is no significant differences in activity assessment between patients with presence or absence of MRI inflammation (osteitis) in SIJ/spine: BASDAI: 4.7 [2.7; 5.5] vs 4.2 [2.9; 8.1], p=0.533; ASDAS-ESR: 2.6 [2.2; 3.0] vs 2.6 [2.2; 3.2], p=0.725; ASDAS-CRP: 2.5 [2.1; 3.4] vs 3.1 [2.8; 3.9], p=0.172 (Fig. 1). Patients who achieved target of the treatment (ASDAS<2.1) or not (ASDAS≥2.1) has similar numbers of osteitis foci – 1.0 [0.0; 3.5] vs 1.0 [1.0; 4.0], p=0.376 and it volume – 1.0 [0.2; 1.7] vs 0.1 [0.0; 1.1], p=0.124. Moreover, the number of foci and the total volume of bone marrow edema were inversely correlated with the assessment of the ability to stand without the support of the BASFI questionnaire (Fig. 2).
Conclusion. The obtained data indicate the limited informative value of MRI for monitoring the effectiveness of biologic treatment in the late/advanced stages of axSpA.



P93. Fig. 1. Activity assessment in patient with/without of bone marrow edema.



P93. Fig. 2. BASFI question #6 and osteitis estimation.

P94

COULD THE TOTAL SPINE MRI BE USEFUL FOR DECISION-MAKING IN PATIENTS WITH ANKYLOSIS SPONDYLITIS? DATA FROM A 2-YEAR PROSPECTIVE STUDY

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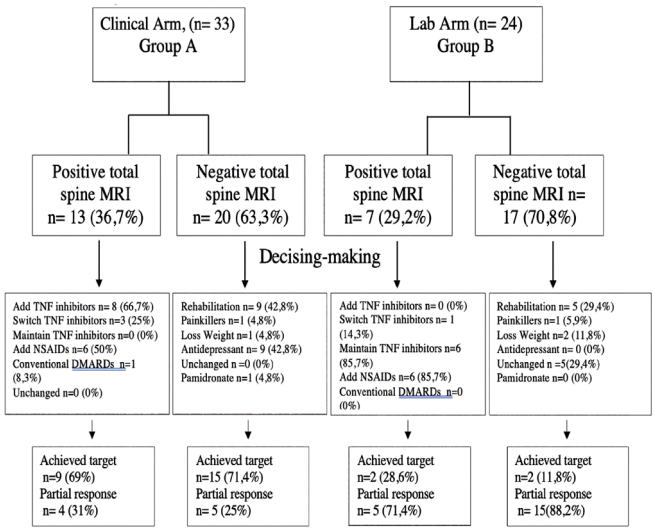
Introduction. The lack of specific biomarkers to evaluate disease activity in patients with ankylosing spondylitis (AS) is a relevant clinical challenge.
Aim. To assess the role of total spine magnetic resonance imaging (MRI) in AS patients with clinical doubt between activity or chronicity.
Patients and Methods. A total of 57 AS patients, according to the New York criteria, were included in this 2-Year prospective study. The inclusion criterion was the clinical doubt between to be or not to be with disease activity, considering standard tools, including inflammatory back pain, peripheral involvement, extra-articular manifestations and C-reactive protein (CRP). The patients were divided in 2 groups (A: pain + low CRP; B: no symptoms + high CRP). All patients performed total spine MRI and the reading was performed by blinded radiologist, considering SPARCC methodology. After that, an expert rheumatologist used it to make major clinical decision. A positive spine MRI was defined when 3 or more bone marrow edema signals were found, according to the OMERACT.
Results. Positive MRI was observed in 40% and 30% of group A and B, respectively. Using the global evaluation (clinical, lab and imaging information) performed by expert rheumatologist as gold-standard, the concordance between positive MRI and overall disease activity was observed in almost 70% of AS patients (r=0.36, *p*=0.01), especially in group A. On the other hand, higher inflammation severity and area score was more found in group B (15.7±7.5 and 9.9±6.7; *p*=0.048; respectively). After 12- and 24- Month follow-up, the most of patients remained with the same medical decision, suggesting good assertiveness over time (Fig. 1).
Conclusions. Our data showed whole spine MRI could be used as an important tool for a suitable clinical decision between disease activity and other non-inflammatory causes of pain in patients with AS.



P94. Fig. 1. Flowchart of 12- and 24-Month follow-up regarding making-decision, based on total spine MRI and final rheumatologist evaluation.

P95

IN RADIOGRAPHIC AXIAL SPONDYLOARTHRITIS, BRIDGING SYNDESMOPHYTES INCREASE RISK OF FACET JOINT ANKYLOSIS ON THE SAME VERTEBRAL LEVEL WHILE FACET JOINT ANKYLOSIS DOES NOT INCREASE RISK OF SAME LEVEL SYNDESMOPHYTES

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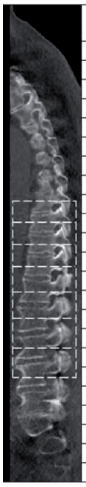
Introduction. In radiographic axial spondyloarthritis, spinal damage manifests as syndesmophytes and facet joint ankylosis (FJA). We explored the order of development between syndesmophytes and FJA.
Methods. In the Sensitive Imaging in Ankylosing Spondylitis cohort patients underwent low-dose Computed Tomography (ldCT) at baseline and two years. LdCT images were scored independently by two trained readers. Vertebrae were scored with the Computed Tomography Syndesmophyte Score for presence and size of syndesmophytes; facet joints were scored as ankylosed or not-ankylosed. Analyses were performed on the vertebral unit (VU) level and using individual-reader data (Figure). Two hypotheses were tested: 1) presence of bridging syndesmophyte(s) is associated with FJA on the same VU two years later, and 2) presence of FJA is associated with syndesmophyte(s) on the same VU two years later. Two Generalized Estimating Equations models were tested per hypothesis using presence of the FJA/syndesmophyte (model 1) or number of FJA/syndesmophytes (model 2) as outcome.
Results. In total, 50 patients were included (mean age 49, 84% male, 82% HLA-B27+). At baseline, there was a higher percentage of bridging syndesmophytes (range: 10-60%) than FJA (range: 8-36%) (Fig. 1). Presence of bridging syndesmophytes was associated with development of FJA two years later (OR (95%CI) Model 1: 3.35 (2.18-5.14); Model 2: 2.23 (1.19-4.16)) while presence of FJA at baseline was not statistically significantly associated with development of syndesmophytes two years later (Table I).
Conclusions. We found a higher occurrence of bridging syndesmophytes than FJA at baseline and significantly increased odds to develop FJA when bridging syndesmophyte(s) are present on the same VU two years prior. This mechanism did not hold true for the other direction. These results cautiously imply that bridging syndesmophytes precede FJA, rather than FJA preceding syndesmophytes.



VU	Segment	≥1 bridging synd at BL reader 1	≥1 bridging synd at BL reader 2	≥1 FJA at BL reader 1	≥1 FJA at BL reader 2
1	Cervical	22%	26%	12%	35%
2		28%	28%	14%	21%
3		26%	30%	23%	20%
4		32%	33%	28%	27%
5		22%	27%	27%	27%
6		26%	21%	32%	30%
7	Thoracic	26%	28%	29%	25%
8		32%	36%	22%	27%
9		50%	48%	26%	31%
10		56%	56%	24%	36%
11		46%	54%	22%	36%
12		48%	46%	24%	26%
13		56%	54%	28%	26%
14		52%	54%	22%	28%
15		52%	56%	22%	32%
16		58%	60%	24%	34%
17		54%	52%	26%	28%
18		47%	47%	27%	33%
19	Lumbar	24%	27%	14%	20%
20		27%	22%	10%	20%
21		20%	20%	10%	12%
22		18%	20%	8%	18%
23		10%	10%	10%	12%

P95. Fig. 1. Percentage of occurrence of syndesmophytes and facet joint ankylosis per vertebral unit and reader at baseline.
Figure displaying percentages of patients with a bridging syndesmophyte and with facet joint ankylosis at baseline per reader. The image on the left illustrates the vertebral unit level (VU) at which analyses were performed. Seven VUs are illustrated in dashed boxes as example. Synd: syndesmophyte; FJA: facet joint ankylosis; BL: baseline.

P95. Table I. Associations between facet joint ankylosis and syndesmophytes.

	Model 1: development of new FJA/syndesmophytes at FU OR (95% CI)	**Model 2**: development and/or increase FJA/syndesmophytes at FU OR (95% CI)
Hypothesis 1 Presence bridging syndesmophytes at BL on development of FJA at FU	**3.35 (2.18-5.14)**	**2.23 (1.19-4.16)**
Hypothesis 2 Presence FJA at BL on development of syndesmophytes at FU	1.60 (0.88-2.91)	1.12 (0.76-1.66)

Statistically significant odds ratios are presented in bold. FJA: facet joint ankylosis; BL: baseline; FU: follow-up.

P96

MRI VERTEBRAL CORNER INFLAMMATION AND FAT DEPOSITION ARE ASSOCIATED WITH WHOLE SPINE LOW DOSE CT DETECTED SYNDESMOPHYTES

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Introduction. In previous studies vertebral corner inflammation (VCI) and vertebral corner fat deposition (VCFD) were associated with syndesmophyte formation on cervical and lumbar conventional radiography. We studied associations between VCI and VCFD on Magnetic Resonance Imaging (MRI) and development of new or grown syndesmophytes on whole spine low-dose computed tomography (ldCT).
Methods. Patients in the Sensitive Imaging in Ankylosing Spondylitis cohort underwent MRI at baseline, 1 year and 2 years, and ldCT at baseline and 2 years. MRI lesions were scored by 3 central readers, MRI patterns over time (Table I) were deemed present if seen by ≥2 out of 3 readers. LdCT images were scored by 2 central readers with the Computed Tomography Syndesmophyte Score and coded as a change score for new or grown syndesmophytes. Corners not at risk for the outcome due to presence of a bridged syndesmophyte at baseline were excluded. Multilevel generalized estimated equations were used.
Results. 50 patients were included (mean age 49, 86% male, 78% HLA-B27+), contributing 4600 vertebral corners. Protection against syndesmophyte development was seen in case of absence of both VCI and VCFD (OR 0.35) and positive associations with ORs ranging from 1.87-2.58 were observed for various VCI/VCFD patterns. Nevertheless, out of all corners with a new or grown syndesmophyte, 47.3% of corners according to reader 1 and 43.9% according to reader 2 had neither VCI nor VCFD preceding the bone formation.

P96. Table I. Effect of vertebral corner inflammation and vertebral corner fat deposition on syndesmophyte formation.

Patterns of lesions over time on MRI	**Corners with VCI/VCFD pattern N(%)**	**OR (95% CI)**
1. VCI at any TP, irrespective of VCFD	691 (15.0%)	**2.37 (1.49-3.78)**
2. VCFD at any TP, irrespective of VCI	1080 (23.5%)	**2.58 (1.97-3.39)**
3. VCI on ≥1 TP and absence of VCFD on all TPs	372 (8.1%)	**1.90 (1.15-3.13)**
4. VCFD on ≥1 TP and absence of VCI on all TPs	754 (16.4%)	**1.87 (1.41-2.48)**
5. VCI precedes VCFD	43 (0.9%)	2.20 (0.83-5.86)
6. VCI precedes or coincides with VCFD. VCFD does not precede VCI	198 (4.3%)	**2.33 (1.47-3.69)**
7. Absence of VCI and VCFD on all TPs	3108 (67.6%)	**0.35 (0.25-0.49)**

VCI, vertebral corner inflammation; VCFD, vertebral corner fat deposition; TP, timepoint.

Conclusions. This study confirmed that there is an association between VCI and VCFD and bone formation also for the thoracic spine and on ldCT compared to conventional radiography. However, almost half of all bone formation occurred in corners without VCI or VCFD, suggesting the presence of these lesions in yearly MRIs does not fully explain the development of syndesmophytes.

P97

THE INFLUENCE OF AGE ON THE PREVALENCE OF INFLAMMATORY AND POST-INFLAMMATORY MRI LESIONS IN THE SIJ OF PATIENTS WITH AND WITHOUT axSpA

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Aim. To compare the influence of age on the prevalence of inflammatory and structural magnetic-resonance-imaging (MRI) changes in the sacroiliac joint (SIJ) of patients with chronic low back pain diagnosed with axial spondyloarthritis (axSpA) or non-SpA.
Methods. MRIs-SIJ of patients referred for differential diagnosis of back pain who were finally diagnosed with axSpA or not by rheumatologists, were evaluated using semi-coronal STIR and T1-weighted MRI sequences. All images were scored blinded to, age, sex and diagnosis for the occurrence of bone marrow edema (BME), fat lesions (FL), erosions and ankylosis on the level of SIJ-quadrants (SIJ-Q). Patient groups were built based on decade of age (until 29, 30-39, 40-49 and ≥50 years).
Results. A total of 309 patients (175 axSpA and 134 non-SpA) with complete MRI sets were included in the analysis. The mean age was 38.5±11.4 and 43.4±13.8, 66.9% and 35.8% were male, the mean CRP was 1.6±2.4 and 1.1±2.1mg/dl and the median symptom duration was 48 and 60 months, respectively. The number of SIJ-Q with BME and erosions was significantly higher in axSpA vs. non-SpA independent of the age group (Table). In comparison, with exception of the patients in the oldest population (≥50 years), the number of SIJ-Q with FL and the number of patients with at least one FL was not different between subgroups, while the number of erosions and FL but not BME was higher in both groups with increasing age. In the univariate analysis, only female sex was significantly associated with higher occurrence of FL.

P97. Table I. Comparison of MRI findings between axSpA and non-SpA patients at different age groups.

Age subgroup	Diagnosis	Mean number of SIJ quadrants			Proportion of patients with . . .		
		BME	FL	Erosion	BME	FL	Erosion
until 29 years	axSpA (n=46)	6.0±3.7	6.8±5.7	4.4±3.8	95.7%	80.4%	89.1%
	non-SpA (n=25)	1.4±1.5	5.4±4.4	0.8±1.5	64,0%	76,0%	48,0%
	p-value	*<0.001*	*0.311*	*<0.001*	*<0.001*	*0.664*	*<0.001*
30-39 years	axSpA (n=50)	5.0±4.1	8.7±5.9	4.6±3.7	92,0%	98,0%	82,0%
	non-SpA (n=26)	1.0±1.3	9.5±6.0	1.1±1.3	46.2%	92.3%	53.8%
	p-value	*<0.001*	*0.485*	*<0.001*	*<0.001*	*0.23*	*0.01*
40-49 years	axSpA (n=47)	4.2±3.7	11.3±6.0	4.6±3.7	85.1%	97.9%	87.2%
	non-SpA (n=35)	1.4±2.9	10.3±5.8	1.6±2.4	34.3%	97.1%	62.9%
	p-value	*<0.001*	*0.413*	*<0.001*	*<0.001*	*0.833*	*0.010*
≥50 years	axSpA (n=32)	5.2±4.9	16.4±5.4	5.5±4.1	87.5%	100,0%	87.5%
	non-SpA (n=48)	1.9±2.1	13.4±4.5	2.0±2.0	66.7%	100%	72.9%
	p-value	*0.001*	*0.006*	*<0.001*	*0.036*	*1,000*	*0.121*

Conclusions. Despite a relatively high prevalence in non-SpA patients, BME and erosions were significantly more frequent in axSpA independent of age, while the presence of FL was not different between groups. FL and erosions are increasingly found in older age groups independent of diagnosis. These data are relevant for the interpretation of MRI findings in the SIJ of patients suspicious of axSpA.

P98

ADALIMUMAB-INDUCED SEVERE RECURRENT FACE FURUNCULOSIS IN A YOUNG PATIENT WITH ACTIVE ANKYLOSING SPONDYLITIS. A CLINICAL CASE

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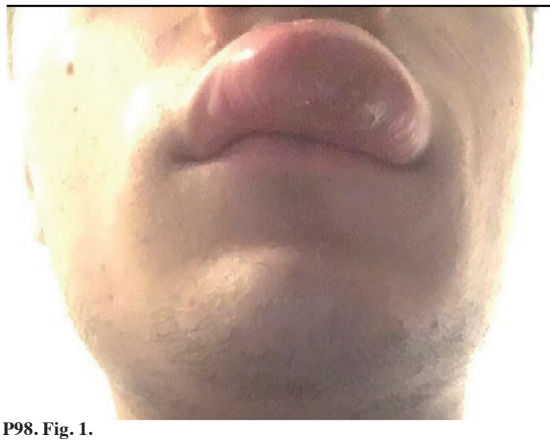
Introduction. iTNF Adalimumab is safe and effective treatment of Ankylosing Spondylitis (AS). Infections were the most frequently reported serious events, ranging from 1.4/100 patient-years (PY) to 6.7/100 across indications (1).
Aim. To report a clinical case of severe recurrent face furunculosis in a young patient with active AS after 2 years Adalimumab treatment
Methods. A 20-year-old Caucasian man with active AS fulfilling mNY criteria (1984) were admitted to our clinic for switching biological DMARDs. On examination, he had inflammatory back pain, knee arthritis, MRI-osteitis at the left knee, increases of C-RP/ESR. From 2018 to 2020 yrs ts was successfully treated with Adalimumab (ADA) 40 mg s/c every other week and reached remission. After 2 years of treatment severe furunculosis with abcesses and boils occurs. (Fig. 1).



P98. Fig. 1.

Furuncules appear on the face, neck and trunk. Pt was successfully treated with surgical proceeded and antibiotics according to Guidelines. ADA was immediately stopped. Drug-free remission persisted for 5 months. After that time AS activity increases. According to meta-analysis of safety data iIL-17A Sekukinumab was started.
Conclusions. iTNF is an effective treatment of AS but safety profile should be taking into account for right choice of treatment.

Reference

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P99

ULTRASOUND (US) SIGNS OF INFLAMMATION AND ACHIEVING MINIMAL DISEASE ACTIVITY IN PSORIATIC ARTHRITIS (PsA) PATIENTS

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Introduction. US changes in PsA are considered as an additional marker of activity and evaluation of the effectiveness of therapy.
Objective. To identify the contribution of US parameters to the assessment of the course of the disease in PsA patients (pts).
Methods. 37 PsA pts according to CASPAR criteria from the RU-PsART cohort, mean age 43,0 [34,0; 50,0] years, median PsA duration 6,0 [3,0;10,0] years, median Ps duration 20,0 [10,0;28,0] years were treated with TF 5 mg twice daily with Methotrexate. At baseline and 6 month of therapy the PsA activity by DAS28, DAPSA, BASDAI, Minimal disease activity (MDA) were evaluated. The wrist, MCP2 and MCP3, PIP2, PIP3, MTP2 and MTP5 joints of the clinically dominant side were examined by US (GS and PD) at 6 mo. US signs of activity were PD>1 and GS≥1.
Results. GS and PD at 6th month were 1 [0; 4] and 0 [0; 2] accordingly. The median number of joints with erosions was 1 [0; 4]. US signs of activity by the 6th month were in 22 pts. All pts divided into two groups based on the presence of US-activity by the 6th month, we found differences in swollen joints count and DAS28 at baseline. In the group with US-activity by the 6th month, the CPR at baseline and DAS28 at baseline were significantly higher than in the group without US-activity (8 [4; 11] vs 4 [0; 6], respectively, p=0.013 and 5.85 [5.12; 6.06] vs 4.92 [3.15; 5.69], respectively, p=0.037). There was no dependence of US and clinical activity at 6th month. MDA was detected in 5 pts (33%) in group with absence of US-activity, and it was maintained in 7 pts (32%) in the group with US-activity ($\chi^2 = 0.01$, p=0.92).
Conclusions. Ultrasound of the joints in PsA should be considered as an additional marker for assessing the activity of the disease.

P100

DIAGNOSTIC UTILITY OF IBP CRITERIA IN AN INCEPTION COHORT OF PATIENTS WITH PSORIASIS, IRITIS, OR COLITIS PRESENTING WITH UNDIAGNOSED BACK PAIN

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Aim. To assess the diagnostic utility of IBP criteria in an inception cohort of patients with psoriasis, iritis, or inflammatory bowel disease (IBD) referred to rheumatology with undiagnosed back pain, using the final rheumatologist diagnosis and imaging as benchmarks.
Materials/Methods. Consecutive patients ≤45 years with ≥3 months undiagnosed back pain with any one of psoriasis, iritis, or IBD underwent clinical evaluation by a rheumatologist for axSpA. The rheumatologist determined presence/absence of axSpA at 3 consecutive stages: 1. After clinical examination; 2. After results of labs (B27, CRP) and radiography; 3. After results of local MRI evaluation. Imaging was also assessed centrally by 3 expert readers. Majority central reader evaluation of presence/absence of MRI indicative of axSpA and final diagnosis by the rheumatologist were used as external standards to test the performance of IBP criteria: ASAS, Berlin, Calin, rheumatologist global for IBP >5 (0-10 scale).
Results. Among 246 patients, 47.6% were diagnosed with axSpA, this being recorded in 45.7%/61.6%/40.2 % with psoriasis/iritis/IBD. The diagnostic utility for all IBP criteria was equally poor, showing a lack of specificity (Table I). MRI was considered indicative of axSpA by central readers in 21.2%/43.5%/19.7% with psoriasis/iritis/IBD. When using MRI as external reference (Table II), all IBP criteria performed even worse.
Conclusion. All IBP criteria and rheumatologist global assessment of IBP had poor diagnostic utility for axSpA in patients with undiagnosed back pain and extra-articular features. This data supports less reliance on ascertainment of IBP in daily routine and more reliance on less subjective assessment tools, especially imaging.

P100. Table I. Rheumatologist diagnosis as external reference.

	Sensitivity	Specificity	LR+	LR-
Psoriasis				
ASAS IBP	65.0%	52.0%	1.4	0.7
Berlin IBP	80.0%	36.0%	1.3	0.6
Calin IBP	80.0%	28.0%	1.1	0.7
All 3 criteria sets	60.0%	56.0%	1.4	0.7
IBP global >5	85.0%	36.0%	1.3	0.4
AAU				
ASAS IBP	84.4%	42.9%	1.5	0.4
Berlin IBP	80.0%	57.1%	1.9	0.4
Calin IBP	93.3%	17.9%	1.1	0.4
All 3 criteria sets	77.8%	60.7%	2.0	0.4
IBP global >5	86.7%	57.1%	2.0	0.2
IBD				
ASAS IBP	78.4%	45.0%	1.4	0.5
Berlin IBP	82.4%	52.1%	1.7	0.3
Calin IBP	84.3%	19.7%	1.0	0.8
All 3 criteria sets	70.6%	57.8%	1.7	0.5
IBP global >5	80.4%	66.2%	2.4	0.3

P100. Table II. Central MRI assessment that MRI is indicative of axSpA as external reference.

	Sensitivity	Specificity	LR+	LR-
Psoriasis				
ASAS IBP	28.6%	38.5%	0.5	1.9
Berlin IBP	42.9%	15.4%	0.5	3.7
Calin IBP	71.4%	23.1%	0.9	1.2
All 3 criteria sets	14.3%	42.3%	0.3	2.0
IBP global >5	85.7%	23.1%	1.1	0.6
AAU				
ASAS IBP	75.0%	26.9%	1.0	0.9
Berlin IBP	70.0%	38.5%	1.1	0.8
Calin IBP	90.0%	15.4%	1.1	0.7
All 3 criteria sets	65.0%	38.5%	1.1	0.9
IBP global >5	75.0%	38.5%	1.2	0.7
IBD				
ASAS IBP	92.3%	37.7%	1.5	0.2
Berlin IBP	76.9%	39.6%	1.3	0.6
Calin IBP	92.3%	17.0%	1.1	0.5
All 3 criteria sets	76.9%	45.3%	1.4	0.5
IBP global >5	92.3%	47.2%	1.8	0.2

P101

DOES IMAGING OF THE SACROILIAC JOINT DIFFER IN PATIENTS PRESENTING WITH UNDIAGNOSED BACK PAIN AND PSORIASIS, ACUTE ANTERIOR UVEITIS, AND COLITIS: AN INCEPTION COHORT STUDY

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Background/Aim. We aimed to compare the spectrum of radiographic and MRI abnormalities in the sacroiliac joint (SIJ) of an inception cohort of patients presenting with undiagnosed back pain and psoriasis, iritis, and colitis.
Materials/Methods. We used data from the prospective multicenter Screening for Axial Spondyloarthritis in Psoriasis, Iritis, and Colitis (SASPIC) Study, which is aimed at early detection of axial SpA in patients first presenting with these disorders. Consecutive patients ≤45 years of age with ≥3 months undiagnosed back pain with any one of psoriasis, AAU, or colitis undergo routine clinical evaluation by a rheumatologist for axial SpA followed by imaging. In SASPIC I, MRI evaluation of the SIJ was ordered per rheumatologist decision. In SASPIC II, MRI evaluation was ordered for all patients. Radiographs and MRI scans were assessed by two central readers.
Results. A total of 240 patients were recruited, 143 from SASPIC I and 97 from SASPIC II, 101 (42.1%) diagnosed with axSpA (65.3% male, mean age 34.4 years, mean symptom duration 8.7 years, B27 positive 55.4%). There were no significant group differences for unilateral versus bilateral radiographic sacroiliitis and no significant differences in the frequencies, type, or distribution of MRI lesions (Table I) .

P101. Table I.

Imaging feature	Colitis (n=30)	Psoriasis (n=19)	Iritis (n=52)	*p*-value
Unilateral sacroiliitis (grade ≥2), N (%)	1 (3.3%)	0 (0%)	2 (3.8%)	0.69
mNY criteria +, N (%)	5 (16.7%)	6 (31.2%)	15 (28.8%)	0.39
Grade of sacroiliitis, mean (SD)	1.8 (2.2)	2.1 (2.7)	2.2 (2.4)	0.76
MRI indicative of axSpA, N (%)	15 (50.0%)	11 (57.9%)	32 (61.5%)	0.60
MRI indicative of axSpA (confidence ≥5/10), N (%)	14 (46.7%)	10 (52.6%)	30 (57.7%)	0.63
MRI active lesion typical of axSpA, N (%)	6 (20.0%)	6 (31.6%)	18 (34.6%)	0.37
MRI structural lesion typical of axSpA, N (%)	11 (36.7%)	7 (36.8%)	18 (34.6%)	0.98
MRI with unilateral lesion (any)	2 (6.7%)	3 (15.8%)	11 (21.2%)	0.22
MRI with unilateral lesion (BME)	1 (3.3%)	2 (10.5%)	5 (9.6%)	0.54
MRI with unilateral lesion (Erosion)	0 (0%)	0 (0%)	3 (5.8%)	0.23
MRI with unilateral lesion (Sclerosis)	1 (3.3%)	1 (5.3%)	3 (5.8%)	0.89
MRI with unilateral lesion (Fat)	0 (0%)	0 (0%)	0 (0%)	NA
MRI with iliac lesion	17 (56.7%)	12 (63.2%)	32 (61.5%)	0.88
MRI with sacral lesion	12 (40.0%)	11 (57.9%)	31 (59.6%)	0.21

Conclusions. Data from the SASPIC prospective inception cohort does not support the view that imaging of SIJ differs in psoriatic axSpA. which appears similar to axSpA associated with iritis or colitis. These data support the umbrella concept of axSpA.

P102

STRUCTURAL DAMAGE IN axSpA: IS THERE A PREFERRED WAY TO ASSESS PROGRESSION?

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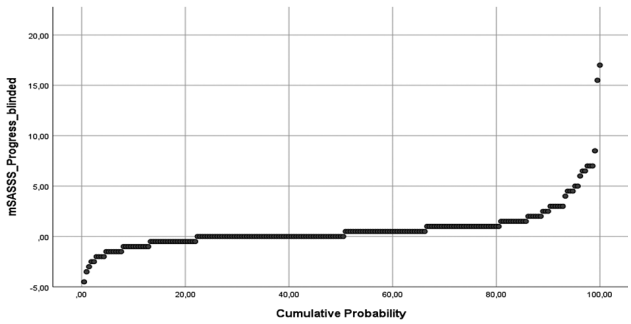
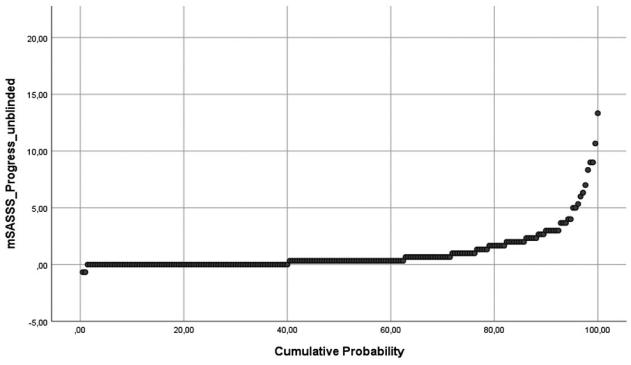
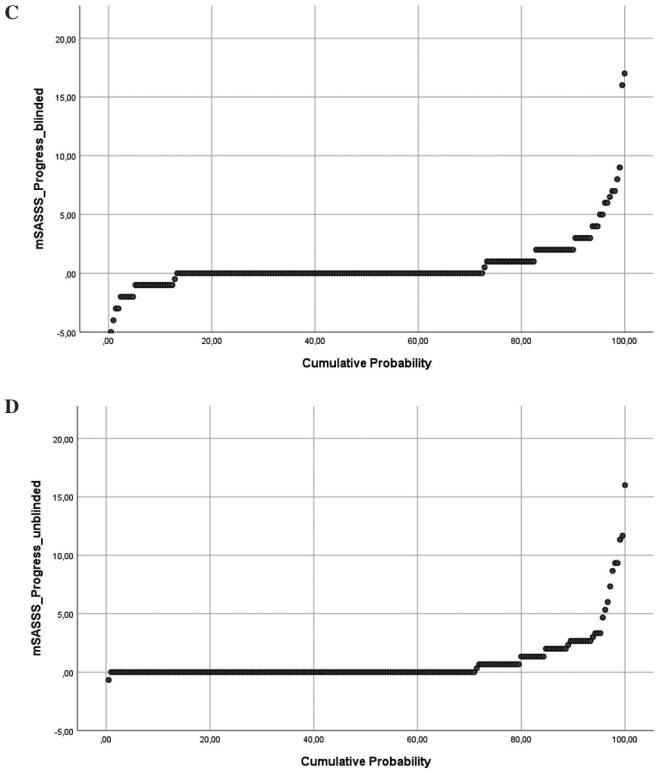
Aim. Investigate the performance of mSASSS in assessing spinal radiographic damage and progression in axSpA using different approaches of radiographs (CR) evaluations.
Methods. Cervical and lumbar CRs of axSpA patients from GESPIC at baseline and after 2 years were scored blindly using the mSASSS. The final mSASSS score was calculated as a mean of 5 readers (2 blinded, 3 unblinded).
Results. 115 radiographic and 95 non-radiographic patients were included. The mean mSASSS at baseline was 4.3±8.3 vs. 3.4±7.9, while mean radiographic progression was 0.7±2.3 vs.1.0±1.9 mSASSS units for the blinded vs. the unblinded group (Fig. 1). On the patient level, progression of ≥2 mSASSS units was found in 30 (14.3%) vs. 37 (17.6%) patients in the blinded vs. the unblinded group, while agreement between groups was seen in 179 (85.2%) patients, 18 (8.9%) for progression and 161 (76.7%) for no progression.
For 'definite' CR findings, the mean mSASSS at baseline was 3.3±8.0 vs. 2.6±7.2 and mean radiographic progression was 0.6±2.4 vs. 0.8±2.1 mSASSS units for the blinded vs. the unblinded group. On the patient level, progression was found in 37 (17.6%) vs. 33 (15.7%) patients in the blinded vs. the unblinded group, while agreement between groups was seen in 188 (89.5%) patients, 24 (11.3%) for progression and in 164 (78.1%) patients for no progression.
In the shift analysis, mSASSS worsening was found in 35 (0.8%) and 'improvement' in 4/4.373 (0.1%) vertebral edges in the blinded group and in 109 (2.2%) and 2/4.914 (0.04%) vertebral edges, respectively, in the unblinded group. The majority of progression was found for the development of 'definite' signs of progression, while more 'minor' signs of progression were found in the unblinded (48/109, 44%) compared to the blinded (10/25, 28.6%) group.
Conclusions. Despite lower mean mSASSS baseline values, higher mean mSASSS progression was found with the unblinded approach, while in the shift analysis this approach was more specific, confirming the absence of 'improvement' over time.

A



B





P102. Fig. 1. Cumulative probability plot for mean mSASSS scores for all scores in a blinded (**A**) and unblinded (**B**) scoring approach and for 'definite' scores in a blinded (**C**) and unblinded (**D**) scoring approach.

P103

RADIOGRAPHIC SACROILIITIS PROGRESSION UP TO 6 YEARS OF FOLLOW-UP IN PATIENTS WITH NON-RADIOGRAPHIC AXIAL SPONDYLOARTHRITIS

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Introduction. In 2 years, approximately 10% of patients with nr-axSpA progresses to AS.. There are no data available of more long-term follow-up. Therefore, our aim was to assess progression of nr-axSpA to AS in patients with up to 6 years of follow-up.
Methods. Patients enrolled in the ongoing Groningen Leeuwarden axial SpA (GLAS) cohort, classified as nr-axSpA at baseline with a baseline pelvic radiograph and ≥1 2-year follow-up radiograph were selected for analyses. These baseline, 2-, 4- and 6-years radiographs were randomized with radiographs of AS patients and scored with known time sequence according to the mNY criteria by 2 trained readers (SK and RW). In case of discrepancy in classification, the score of a 3rd independent reader (AS) was used. Progression to AS was defined as progression in mNY sacroiliitis score to ≥2 bilaterally or ≥3 unilaterally.
Results. 79 patients were clinically classified as nr-axSpA at baseline confirmed by radiographic score. At baseline mean age was 39±10 years, 48% was male, median symptom duration was 6 (IQR 3-17) years, mean ASDAS was 2.8±1.1, and 71% was HLA-B27+.
After 2, 4 and 6 years, 8/79 (10.1%), 4/48 (8.3%) and 3/24 (12.5%) nr-axSpA patients progressed to AS. In total, 23 and 20 patients did not yet reach follow at 4 and 6 years, respectively (Table I).
Conclusion. In our observational cohort with up to 6 years of follow-up, every 2 years approximately 10% of patients with nr-axSpA progressed to AS. The next step will be to evaluate associations with patient and disease characteristics.

P103. Table I. Patients classified with nr-axSpA progressing to AS according to the mNY-criteria for radiographic sacroiliitis evaluated with 2-year intervals.

	Population size	nr-axSpA	AS	follow-up data not yet available
Baseline	79	79	N/A	N/A
+2 years	79	71	8	N/A
+4 years	48	44	4	23
+6 years	24	21	3	20

P104

DATA-DRIVEN DEFINITIONS BASED ON INFLAMMATORY LESIONS FOR A POSITIVE MRI OF THE SPINE CONSISTENT WITH AXIAL SPONDYLOARTHRITIS

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Aim. We aimed to identify quantitative cut-offs based on numbers of vertebral corners that define a positive MRI for axSpA, there being two gold standards: A. majority central reader decision as to the presence of spine MRI findings consistent with axSpA B. rheumatologist expert opinion diagnosis of axSpA.
Methods. Eight ASAS-MRI readers recorded MRI lesions in the spine from 62 cases. We calculated sensitivity and specificity for numbers of vertebral corners (VC) with BME where a majority of readers (≥5/8) agreed as to the presence of MRI findings consistent with axSpA. We selected optimal cut-offs with ≥95% specificity. These cut-offs were analyzed for their predictive utility for rheumatologist diagnosis of axSpA by calculating positive and negative predictive values (PPV, NPV) and selecting cut-offs with PPV of ≥95%.
Results. Cut-offs achieving specificity of ≥95% for MRI findings consistent with axSpA were 4 VCs (sensitivity 75%) for all cases, 3 VCs (sensitivity 37.5%) for cases with ≥1 additional location with inflammation, 1 VC (sensitivity 62.5%) in cases with ≥2 VC fat lesions (Table I). All of these cut-offs also had very high PPV (≥95%) for diagnosis of axSpA (Table II).
Conclusions. A cut-off of BME in ≥4 vertebral corners, or ≥3 vertebral corners in the setting of additional inflammatory lesions at other locations or corner fat, are primary candidates for defining a positive MRI of the spine consistent with axSpA. These cut-offs apply to typical patients referred to a rheumatologist with suspicion of axSpA.

P104. Table I. Majority readers agree MRI findings consistent with axSpA are present is the gold-standard external reference.

MRI cut-offs	Sensitivity (95%CI)	Specificity (95%CI)
BME in ≥1 vertebral corner	87.5(47.3 - 99.7)	83.3 (70.7 - 92.1)
BME in ≥2 vertebral corners	87.5 (47.3 - 99.7)	87.0 (75.1 - 94.6)
BME in ≥ 3 vertebral corners	87.5 (47.3 - 99.7)	94.4 (84.6 - 98.8)
BME in ≥4 vertebral corners	**75.0 (34.9 - 96.8)**	**98.2 (90.1 - 100.0)**
BME in ≥5 vertebral corners	62.5 (24.5 - 91.5)	98.2 (90.1 - 100.0)
Cases with ≥1 additional non-corner site inflammatory lesion		
BME in ≥1 vertebral corner	37.5 (8.5 - 75.5)	94.4 (84.6 - 98.8)
BME in ≥2 vertebral corners	37.5 (8.5 - 75.5)	94.4 (84.6 - 98.8)
BME in ≥3 vertebral corners	**37.5 (8.5 - 75.5)**	**98.2 (90.1-100.0)**
BME in ≥4 vertebral corners	37.5 (8.5 - 75.5)	100.0 (93.4-100.0)
BME in ≥5 vertebral corners	37.5 (8.5 - 75.5)	100.0 (93.4-100.0)
Cases with ≥2 vertebral corner fat lesions		
BME in ≥1 vertebral corner	**62.5 (24.5 - 91.5)**	**100.0 (93.4-100.0)**
BME in ≥2 vertebral corners	62.5 (24.5 - 91.5)	100.0 (93.4-100.0)
BME in ≥ 3 vertebral corners	50.0 (15.7 - 84.3)	100.0 (93.4-100.0)
BME in ≥4 vertebral corners	50.0 (15.7 - 84.3)	100.0 (93.4-100.0)
BME in ≥5 vertebral corners	37.5 (8.5 - 75.5)	100.0 (93.4 -100.0)

P104. Table II. Predictive values of cut-offs for number of vertebral corners with BME according to the diagnostic ascertainment of the rheumatologist.

MRI cut-offs	Sensitivity (95%CI)	Specificity (95%CI)	PPV	NPV
MRI findings consistent with axSpA ≥ any 2 readers	52.5 (36.1 - 68.5)	94.7 (74.0 - 99.9)	95.5 (75.3 - 99.3)	48.6 (40.2 - 57.2)
MRI findings consistent with axSpA ≥ majority read	20.0 (9.1 - 35.6)	100.0 (82.4 - 100.0)	100.0	37.3 (33.7 - 40.9)
BME in ≥4 vertebral corners	**17.5 (7.3 - 32.8**	**100.0 (82.4 - 100.0)**	**100.0**	**36.5 (33.3 - 39.9)**
Cases with ≥1 additional inflammatory lesion				
BME in ≥3 vertebral corners	**10.00 (2.8 - 23.7)**	**100.00 (82.4 - 100.0)**	**100.0**	**34.5 (32.2 - 36.9)**
Cases with ≥2 vertebral corner fat lesions				
BME in ≥1 vertebral corner	**12.50 (4.2 - 26.8)**	**100.00 (82.4 - 100.0)**	**100.0**	**35.2 (32.6 - 37.9)**

P105

CONSENSUS DEFINITIONS FOR MRI LESIONS IN THE SPINE OF PATIENTS WITH AXIAL SPONDYLOARTHRITIS: FIRST ANALYSIS FROM THE ASSESSMENTS IN SPONDYLOARTHRITIS INTERNATIONAL SOCIETY CLASSIFICATION COHORT

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Aim. We aimed to determine the spectrum and compare the frequencies of active and structural lesions on MRI images of the spine from the ASAS-Classification Cohort according to the updated ASAS spine lesion definitions, the diagnosis of axSpA, and the presence of radiographic sacroiliitis.
Methods. MRI lesions were recorded by 9 central readers in an eCRF that comprises global assessment (MRI indicative of axSpA yes/no) and detailed scoring of each discovertebral unit as well as lateral and posterior structures. Comparison of active and structural lesion frequencies according to local rheumatologist diagnosis of axSpA and the presence of radiographic sacroiliitis was assessed descriptively according to individual, ≥2, and majority reader (≥5/9) concordant data.
Results. MRI scans of the entire spine were available from 69 cases and AxSpA was diagnosed in 44 (68.8%). There were significantly more VCBME lesions in axSpA patients (mean(SD):1.8 (2.7)) than non-axSpA (mean(SD):0.3 (0.5)) (p<0.001) while differences in VCFAT were not significant (Table I). The presence of ≥2 VCBME lesions had 90-95% specificity for axSpA. Significantly more VCBME and VCFAT were observed in the setting of radiographic sacroiliitis (modified New York criteria (mNY)) (Table II).
Conclusion. Spine lesions on MRI are relatively frequent in patients with undiagnosed back pain presenting to the rheumatologist. The presence of at least 2 VCBME lesions (each on 2 consecutive sagittal slices and without degenerative disc disease), but not VCFAT, may have some diagnostic utility.

P105. Table I. Spinal corner lesions stratification according to rheumatologist diagnosis of axial spondyloarthritis data.

Vertebral Corner MRI lesions	majority of readers (>=5)			≥2 readers		
	axSpA=Yes (n=44)	axSpA=No (n=20)	*p*-value	axSpA=Yes (n=44)	axSpA=No (n=20)	*p*-value
Corner Fat ≥1	12 (27.3%)	2 (10%)	0.19	17 (38.6%)	7 (35%)	0.78
Corner Fat ≥2	10 (22.7%)	2 (10%)	0.31	13 (29.5%)	4 (20%)	0.64
Corner Fat ≥3	8 (18.2%)	1 (5%)	0.25	10 (22.7%)	3 (15%)	0.74
Corner Fat ≥4	7 (15.9%)	1 (5%)	0.42	9 (20.5%)	2 (10%)	0.48
Corner Fat≥ 5	6 (13.6%)	0 (0%)	0.17	7 (15.9%)	1 (5%)	0.42
Corner BME ≥1	17 (38.6%)	1 (5%)	0.006	25 (54.5%)	6 (30%)	0.047
Corner BME ≥2	15 (34.1%)	1 (5%)	0.013	19 (43.2%)	2 (10%)	0.009
Corner BME ≥3	11 (25%)	0 (0%)	0.013	16 (36.4%)	1 (5%)	0.008
Corner BME ≥4	8 (18.2%)	0 (0%)	0.094	12 (27.3%)	1 (5%)	0.048
Corner BME ≥5	7 (15.9%)	0 (0%)	0.088	8 (18.2%)	0 (0%)	0.049

P105. Table II. Spinal corner lesions stratification according to radiographic sacroiliitis data.

Vertebral Corner MRI lesions.	majority of readers (>=5)			≥2 readers		
	mNY=Yes (n=10)	mNY=No (n=49)	*p*-value	mNY=Yes (n=10)	mNY=No (n=49)	*p*-value
Corner Fat ≥1	5 (50%)	9 (18.4%)	0.047	5 (50%)	17 (34.7%)	0.48
Corner Fat ≥2	5 (50%)	7 (14.3%)	0.022	5 (50%)	11 (22.4%)	0.12
Corner Fat ≥3	4 (40%)	5 (10.2%)	0.036	4 (40%)	9 (18.4%)	0.20
Corner Fat ≥4	4 (40%)	4 (8.2%)	0.022	4 (40%)	7 (14.3%)	0.079
Corner Fat≥ 5	4 (40%)	2 (4.1%)	0.006	4 (40%)	4 (8.2%)	0.022
Corner BME ≥1	5 (50%)	11 (22.4%)	0.116	7 (70%)	22 (44.9%)	0.18
Corner BME ≥2	5 (50%)	9 (18.4%)	0.047	5 (50%)	14 (28.6%)	0.27
Corner BME ≥3	5 (50%)	6 (12.2%)	0.014	5 (50%)	11 (22.4%)	0.12
Corner BME ≥4	5 (50%)	3 (6.1%)	0.002	5 (50%)	7 (14.3%)	0.022
Corner BME ≥5	5 (50%)	2 (4.1%)	0.001	5 (50%)	3 (6.1%)	0.002

P106

SCORING MRI STRUCTURAL LESIONS IN SACROILIAC JOINTS OF PATIENTS WITH AXIAL SPONDYLOARTHRITIS: HOW MANY SLICES ARE OPTIMAL?

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Aim. We aimed to investigate inter-reader reliability, the extent of detection of lesions, and frequency of cases with a positive MRI for structural lesions when using an "all slice" approach versus the SPARCC scoring of 5 central slices.
Method. MRI T1W images with DICOM series were available from 148 cases who had MRI performed in the ASAS-Classification Cohort. Seven central readers recorded structural lesions per the ASAS definitions in consecutive semicoronal slices using the "all slice" approach, but also recording the transitional slice, according to their presence/absence in SIJ quadrants (erosion, fat lesion, sclerosis) or halves (backfill, ankylosis). Lesion frequencies were assessed descriptively according to majority agreement (≥4/7) and also ≥2 central readers. Reliability for detection of MRI lesions was assessed by intraclass correlation coefficient (ICC).
Results. The mean (SD) (range) number of anterior and posterior slices peripheral to the 5 central slices was 1.0 (1.0) (0-4) and 2.2 (1.8) (0-6) per case, respectively. There were 2 cases (1.4%) where ≥2 readers scored structural lesions in peripheral slices but not in the 5 central slices. The mean percentage of the total structural lesion score that was captured by the 5 central slices was >75% for all types of lesions except ankylosis (59%) (Table I). Inter-reader reliability was greater for all lesions when assessing the 5 central slices and especially for erosion and backfill (Table II).

P106. Table I.

MRI Lesion	"All slice"	Central 5 slices	Peripheral slices	*p*-value central vs peripheral slices	*p*-value "all slice" vs central slices
Mean (SD) Lesion Score Per Case					
Erosion	2.4 (4.5) (0-22.9)	1.8(3.4) (0-17.1)	0.6 (1.4) (0-10.1)	<0.001	< 0.001
Fat lesion	2.5 (5.9) (0-34.0)	1.8 (4.5) (0-25.1)	0.7 (1.8) (0-9.9)	< 0.001	<0.001
Sclerosis	2.0 (4.9) (0-39.0)	1.5 (3.6) (0-26.1)	0.5 (1.5) (0-12.9)	< 0.0001	0.0003
Backfill	0.5 (1.5) (0-12)	0.4 (1.2) (0.0-9.3)	0.1 (0.4) (0-2.7)	< 0.0001	0.84
Ankylosis	0.5 (3.4) (0-30.7)	0.3 (2.3) (0-20.0)	0.2 (1.2) (0-11.3)	0.10	0.18
Mean (SD) (Range) % of Total Lesion Score in Central vs Peripheral slices					
Erosion	100%	76.4% (28.9%) (0-100%)	23.6% (28.9%) (0-100%)	<0.001	NA
Fat lesion	100%	75.4% (26.5%) (0-100%)	24.6% (26.5%) (0-100%)	<0.001	NA
Sclerosis	100%	79.5% (22.9%) (0-100%)	20.5% (22.9%) (0-100%)	<0.001	NA
Backfill	100%	86.0% (20.2%) (0-100%)	14.0% (20.2%) (0-100%)	<0.001	NA
Ankylosis	100%	59.0% (36.4%) (0-100%)	41.0% (36.4%) (0-100%)	0.56	NA

P106. Table II. ICC of 7 readers (Mean (SD) (Range)).

MRI lesion	All slices	Central 5 slices	Peripheral slices
Erosion	0.54 (0.15) (0.28-0.84)	0.58 (0.13) (0.34-0.85)	0.40 (0.17) (0.10-0.66)
Fat lesion	0.61 (0.18) (0.30-0.89)	0.63 (0.16) (0.35-0.88)	0.52 (0.20) (0.19-0.82)
Sclerosis	0.73 (0.18) (0.36-0.94)	0.73 (0.16) (0.36-0.91)	0.67 (0.19) (0.27-0.94)
Backfill	0.37 (0.21) (0.10-0.85)	0.39 (0.19) (0.14-0.83)	0.18 (0.23) (0.0-0.80)
Ankylosis	0.97 (0.02) (0.91-0.99)	0.99 (0.01) (0.97-1.0)	0.85 (0.10) (0.62-0.98)

Conclusions. The major component of structural lesion data is captured by assessment of 5 slices, which includes the transitional slice and the subsequent 4 anterior slices. Moreover, reliability for detection of structural lesions is substantially worse in peripheral slices.

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ENRICHMENT OF RORγT⁺ INNATE-LIKE T CELLS IN JOINT AND GUT SAMPLES FROM SPONDYLOARTHRITIS PATIENTS

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Dysregulated IL-23/IL-17 responses have been linked to development of spondyloarthritides (SpA), a cluster of inflammatory rheumatic diseases which is frequently marked by the presence of (subclinical) gut inflammation. IL-23/IL-17 inflammation is controlled by RORγt, the key Th17 cell transcriptional regulator, which is also expressed by innate-like T cell subsets such as iNKT, MAIT and γδ-T cells, but their role in SpA pathology is still unclear. Here we describe the presence of particular RORγt⁺T-bet^{lo}PLZF⁻ iNKT and γδ-hi T cell subsets in healthy peripheral blood. RORγt⁺ iNKT and γδ-hi T cells showed profound IL-23 mediated Th17-like immune responses and were clearly enriched within inflamed joints of SpA patients where they act as major IL-17 secretors. SpA derived innate-like T cells showed unique and Th17-skewed phenotype and gene expression profiles as determined by respectively FlowSOM and RNAseq analyses. Moreover, RORγt⁺ subsets were clearly enriched in intestinal biopsies of SpA-patients compared to healthy controls, and remarkably this was more pronounced in patients with subclinical gut inflammation. In conclusion, our findings highlight a unique diversity of human RORγt⁺ T cells and show that SpA innate-like T cells, both in gut and joint samples, are skewed towards a predominant pro-inflammatory Th17 profile. Overall, these data strengthen the existence of a gut–joint axis of inflammation in SpA.

P108

PROINFLAMMATORY OSTEOPONTIN AND CCL2 ARE SPONTANEOUSLY PRODUCED BY PSORIATIC ARTHRITIS SYNOVIAL MYELOID CELLS

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Introduction. Multiple immune populations have been associated with the pathogenesis of psoriatic arthritis (PsA). This study aimed to identify cytokine production in unstimulated cells from matched PsA synovial fluid (SF) and blood, utilising both mass cytometry (CyTOF) and transcriptomic analysis.
Methods. Paired SF and blood were either freshly (<30 minutes) fixed or incubated with protein transport inhibitors for 6 h with no *in vitro* stimulation before fixing. Samples were stained with a phenotyping CyTOF panel of 36 cell surface markers, and a functional CyTOF panel consisting of 18 cell surface markers and 18 intracellular markers to both T cell and myeloid cell secreted cytokines and proteins. Protein levels in SF and blood plasma were quantified by ELISA and LEGENDplex analysis. Transcriptomic analysis by gene array of key expanded cell populations and single-cell RNA-sequencing (scRNAseq) were performed.
Results. There are distinct differences in the immune milieu of PsA SF compared to blood *ex vivo*, with expansion of intermediate monocytes, macrophages and dendritic cell populations in the myeloid compartment of PsA SF. Over a 6 h timeframe, minimal cytokine production by T cells was detected; however, classical monocytes, intermediate monocytes and macrophages spontaneously produced significant levels of the proinflammatory proteins osteopontin and CCL2. These proteins were also significantly increased in PsA SF compared to paired plasma. The genes for osteopontin and CCL2 were highly upregulated by PsA SF monocytes/macrophages as determined by both gene array and scRNAseq.
Conclusion. We have generated a comprehensive cellular map of PsA SF and blood using proteomic and transcriptomic analyses. We have found significant levels of proinflammatory proteins produced by PsA SF myeloid cells that may have potential in both PsA diagnosis and therapy.

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IMMUNOGLOBULIN G ANTIBODIES TO THREE NOVEL PEPTIDES IN EARLY AXIAL SPONDYLOARTHRITIS IN TWO INDEPENDENT COHORTS

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Background. There is an unmet need for biomarkers that support the diagnosis of patients with early axial spondyloarthritis (axSpA). Emerging evidence supports the involvement of autoantibodies in axSpA[1]. To identify novel antibodies, an axSpA cDNA phage display library was screened for reactivity with immunoglobulin G (IgG) antibodies in plasma of early axSpA patients. This resulted in antibodies to 9 novel axSpA peptide antigens, corresponding to random peptides and a novel axSpA autoantigen, Double homeobox protein 4 (DUX4).
Objectives. The aim was to determine the diagnostic potential of the antibodies

to these 9 peptides in axSpA patients and controls, and to investigate the biological relevance of autoantibodies targeting DUX4.
Methods. Antibody reactivity to the 9 peptides was determined in 76 early axSpA patients, 75 chronic low back pain patients (CLBP), 60 rheumatoid arthritis patients (RA), and 94 healthy controls (HC) from the Hasselt University (UH) cohort using ELISA. Antibody presence was further validated in 174 patients from the *Leuven* Spondyloarthritis (Biologics) Cohort ((*Bio)SPAR*), including 79 early axSpA patients. DUX4 expression in synovial axSpA tissue was investigated by immunohistochemistry.
Results. Antibodies to 3 UH-axSpA peptides with the highest positive likelihood ratio (LR+) were significantly more present in early axSpA patients from the UH and (Bio)SPAR cohorts (14.2% (22/155)) compared to CLBP (5% (4/75)), resulting in 95% specificity. The LR+ for confirming axSpA using antibodies to these 3 peptides was 2.7, which is higher than the currently used laboratory marker C-reactive protein (CRP). Furthermore, we show for the first time that DUX4 is expressed in the synovial lining layer of axSpA synovium.
Conclusion. Antibodies to 3 UH-axSpA peptides could provide a novel tool for diagnosis of a subset of axSpA patients. Further research is necessary to investigate whether DUX4 can contribute to axSpA pathology.

Reference
1. QUADEN DH *et al*.: *Autoimmun Rev* 2016.

P110

SCREENING FOR IMMUNOGLOBULIN A ANTIBODY REACTIVITY IN EARLY AXIAL SPONDYLOARTHRITIS IDENTIFIES NOVEL PEPTIDE TARGETS

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Background. Although autoantibodies are not generally considered as a hallmark of axial spondyloarthritis (axSpA), increasing evidence suggests the presence of autoantibodies in a subset of axSpA patients[1]. Most of these described antibodies are of the immunoglobulin G (IgG) isotype while other antibody isotypes are less well studied. Antibodies of the IgA isotype are of interest due to the strong link between gut inflammation and spondyloarthropathies.
Objectives. The aim of this study was to identify and characterize novel IgA isotype (auto)antibodies in early axSpA patients.
Methods. An axSpA cDNA phage display library representing the antigenic repertoire from axSpA hip synovium was constructed and screened for reactivity with IgA antibodies in plasma of early axSpA patients (n=10). Antibody reactivity against 173 identified targets was determined in pooled plasma of early axSpA patients (n=60) and healthy controls (HC, n=30) from the Hasselt University (UH) cohort by ELISA. Antigenic targets with increased IgA reactivity in axSpA plasma pools were further validated in individual plasma samples of early axSpA patients (n=79) and HC (n=92).
Results. We identified 7 novel UH-axSpA-IgA peptide targets with increased IgA antibody reactivity in pooled axSpA plasma. Validation of antibody reactivity in individual plasma samples revealed antibody reactivity against at least one of these 7 peptide targets in 32% of early axSpA patients (25/79) compared to 25% in HC (23/92, p=0.40). By combining the antibody reactivity against the 3 UH-axSpA-IgA peptides with the highest positive likelihood ratio (LR+), an increased overall specificity of 90% (9/92) could be achieved, with an associated sensitivity of 24% (19/79, p=0.014) resulting in a LR+ of 2.4.
Conclusion. Antibodies to 3 UH-axSpA-IgA peptides could be of added value for discriminating early axSpA patients from HC in the UH cohort, but further validation is necessary in independent cohorts of axSpA patients as well as in patients with chronic low back pain.

Reference
1. QUADEN DH *et al*.: *Autoimmun Rev* 2016.

P111

OVEREXPRESSION OF TLR-2 AND TLR-4 IN GUT-HOMING Tγδ CELLS OF axSpA PATIENTS

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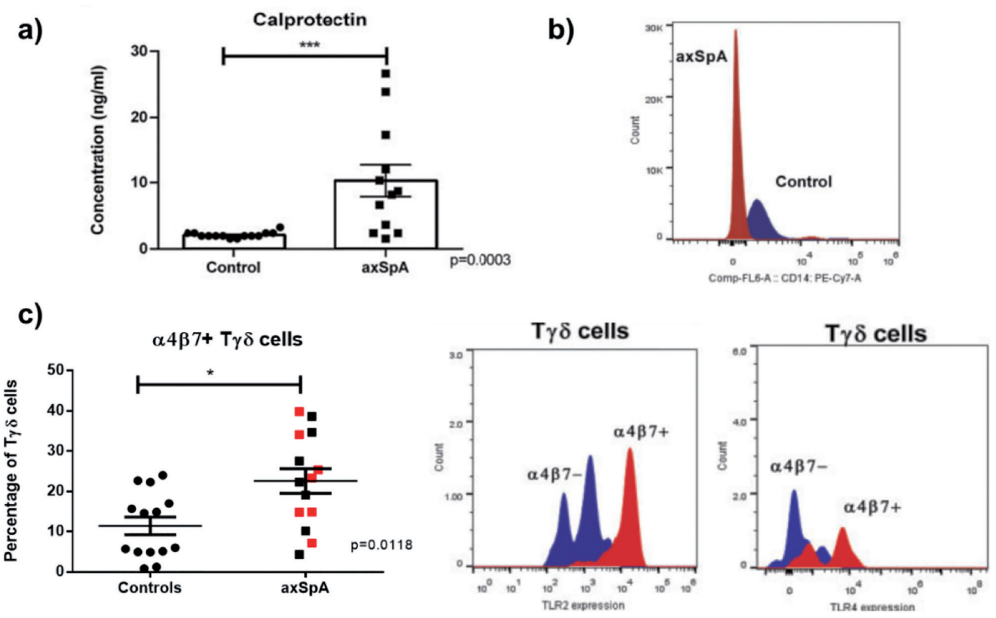
Introduction. It has been proposed that lymphocytes can be activated in the gut of patients with SpA and then migrate to peripheral tissues to mediate pro-inflammatory mechanisms; nevertheless, it is unknown whether these cells have a distinctive expression of innate immune receptors; therefore, this study aimed to determine the expression of TLR2 and TLR4 in circulating α4β7-positive monocytes, T cells and T-gamma delta cells of patients with axial spondyloarthritis (axSpA).
Methods. We analyzed the frequencies of α4β7-positive T cells, Tγδ cells, and monocytes in patients with axSpA, together with the expression of TLR2 and TLR4 by flow cytometry. Also, we measured the concentration of fecal calprotectin in all patients and controls.
Results. We found high fecal calprotectin levels in patients with axSpA irrespectively of activity status (Fig. 1a). Also, a decreased expression of CD14 in monocytes was identified (Fig. 1b). Immunophenotyping experiments revealed high percentages of α4β7-positive T (p=0.026) and Tγδ cells (p=0.0118) in the patients with axSpA; these cells showed differential expression of TLR2 and TLR4 when compared to α4β7-negative cells and cells from healthy subjects (Fig. 1c). Such differences were not correlated with disease activity or fecal calprotectin concentration.
Discussion. Here, we describe a population of circulating gut-homing Tγδ cells and remarkably found that this population has a higher expression of TLR2 and TLR4; these results suggest that they are more susceptible for activation, although further characterization studies are needed.
Conclusion. There is an increase of circulating α4β7-positive T and Tγδ cells in patients with axSpA. These cells differentially express TLR2 and TLR4.

Acknowledgments. This work was supported by SIP-IPN (grants SIP20160695, SIP20170913 and SIP20181235) and CONACYT (grant 000000000240054).



P111. Fig. 1. a) Concentration of fecal calprotectin in axSpA patients and controls.
b) CD14 expression in monocytes of patients and healthy subjects.
c) TLR2 and TLR4 expression in Tgd cells of axSpA patients.

P112

CD27$^-$CD38^{low}CD21^{low} B-CELLS ARE INCREASED IN ANKYLOSING SPONDYLITIS

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Introduction. In studies into the pathogenesis of AS, B-cells have received little attention most likely due to the lack of conventional auto-antibodies. A B-cell subset that has been particularly associated with autoreactivity is characterized by low expression of CD21. These CD21^{low} B-cells are increased in systemic autoimmune diseases. Our objective was to obtain insights into the composition of the peripheral B-cell compartment of AS patients compared to healthy donors (HD) and to patients with primary Sjögren syndrome (pSS), a typical B-cell-associated autoimmune disease. Special emphasis was given to CD21^{low} B-cells.
Methods. The proportions and phenotype of peripheral B-cells were assessed in cryopreserved peripheral blood mononuclear cells of 45 AS patients (mean age 49.2±13.2 years, 62% male, mean ASDAS 2.5±1.0), 30 age- and sex-matched HDs and 20 age-matched patients with pSS, using 15-color flow-cytometry analysis.
Results. Proportions of CD27$^-$CD38^{low}CD21^{low} B-cells among total B-cells were significantly increased in both AS (median 6.4%, p<0.0001) and pSS patients (median 7.8%, p<0.0001) compared to HDs (median 4.9%), as well as higher frequencies of plasmablasts in both disease groups (both p<0.01). The phenotype of CD27$^-$CD38^{low}CD21^{low} B-cells showed significant increase in the frequency of cells positive for chemokine receptor CXCR3$^+$ a homing marker important for B-cell migration to sites of inflammation in AS patients compared with HDs (p<0.01). Regarding the association and clinical parameters in AS patients, we found that CD27$^-$CD38^{low}CD21^{low} B-cells were significantly correlated with age (r=0.347, p=0.02) and ESR (ϱ=0.386, p=0.01). Furthermore, AS patients with extra-skeletal manifestations (ESM) showed increased frequencies of CD27$^-$CD38^{low}CD21^{low} B-cells compared to patients without ESM (p<0.05).
Conclusions. In this cross-sectional study, we observed an increased proportion of circulating CD27$^-$CD38^{low}CD21^{low} B-cells in AS patients, as in pSS patients. This in combination with the elevated expression of CXCR3 on these particular B-cells in AS patients is suggestive for active B-cell involvement in the pathogenesis of AS, against prevailing dogma.

P113

HIGH DIMENSIONAL IMMUNE PROFILING OF CD8$^+$ T CELL SUBSETS AND IMMUNE CHECKPOINTS IMPLICATE A DYSREGULATION OF CYTOTOXIC T LYMPHOCYTES (CTLS) IN ANKYLOSING SPONDYLITIS

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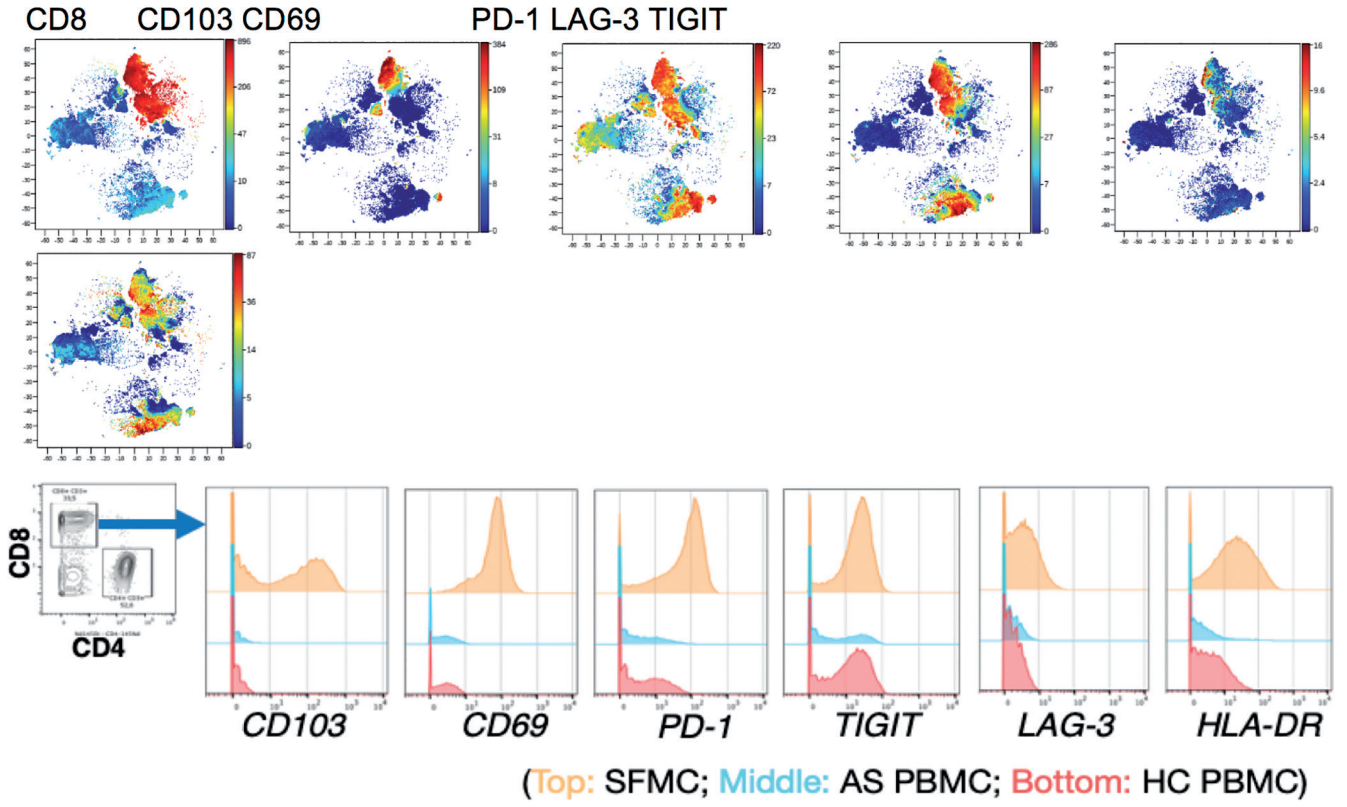
Introduction. Ankylosing Spondylitis (AS) is characterized by chronic inflammation which underlies the pain and precedes spinal ankylosis. The strongest genetic association with AS is HLA-B27, implicating involvement of CD8+ CTLs in AS pathogenesis. To date, the CTL compartment that underlies AS inflammation has yet to be fully defined. Recently, our lab reported altered cytotoxicity profiles in CTLs from AS patients, suggesting that dysregulated CTLs with a cytotoxic phenotype are recruited to the joints. These findings support a central role of CTL dysregulation in AS pathogenesis and warrant further investigations. Here we sought to characterize CTL subsets and immune checkpoint expression on CTL from AS patients.
Methods. We performed immunophenotyping of peripheral blood mononuclear cells (PBMCs) and synovial fluid mononuclear cells (SFMCs) by flow cytometry and mass cytometry time-of-flight (CyTOF). A high-dimensional (30+ parameters) CyTOF panel was developed to interrogate the CTL compartment in AS patients.
Results. We identified a sub-cohort of AS patients with an enriched population of terminally differentiated (CD45RA+CCR7-) memory CTL (up to 46.2% of CD8$^+$) in the periphery and elevated expression of PD-1 (mean 18.3 vs. 10.2%) & TIGIT (mean 17.3 vs 4.4 %) on AS CTL compared to healthy controls. In the SF, effector memory CTLs are the predominant CD8$^+$ T cell subset. PD-1 expression is also highly elevated in the synovial CTL compartment (up to 75% of CTLs), suggesting local immune activation. Further interrogation of the SF CTL compartment by CyTOF revealed that immune checkpoints typically associated with exhaustion (PD-1, TIGIT, and LAG-3) are highly expressed on a subset of activated CD69+ CD103+ tissue resident memory-like CTL (Fig. 1).
Conclusions. We demonstrate that CTL from AS patients are highly activated, and are characterized by a distinct immune phenotype which implicates an intrinsic dysregulation of the CTL compartment.

Acknowledgements. Supported by The Arthritis Society of Canada (Strategic Operating Grant & Training Postdoctoral Fellowship).



P113. Fig. 1. Immune profiling by CyTOF revealed a subset of tissue resident memory-like CTL in AS synovial fluid expressing immune checkpoint markers. (Top Panel) Representative viSNE plots depicting expression of indicated surface marker (Bottom Panel) Histograms depicting expression levels of CD103, CD69, PD-1, TIGIT, LAG-3, and HLA-DR in CD8$^+$ T cells.

P114

FREQUENCY AND CHARACTERISTICS OF INFLAMMATORY BOWEL DISEASE IN SPONDYLOARTHRITIS WITH BIOLOGICAL THERAPY

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Introduction. Inflammatory bowel disease (IBD) can appear in spondyloarthritis. Its prevalence is 5-10%, although subclinical intestinal inflammation has been found in up to 60%. Biological therapy (BT) can be the treatment for IBD or produce it paradoxically.
Objective. To describe the frequency and characteristics of IBD in spondyloarthritis with BT.
Material and Methods. Descriptive and retrospective study (January 2003-January 2019) of patients with spondyloarthritis that develop IBD. For the analysis, frequencies and percentages were used in qualitative variables and mean±standard deviation in quantitative variables. Statistical analysis was performed with IBM SPSS.
Results. We studied 270 patients with spondyloarthritis, 70.4% male with a mean age of 39.9±12 years. IBD was observed in 25 patients (9.26%): Crohn's disease (CD) in 13, ulcerative colitis in 9 and indeterminate colitis in 3. 16 patients had AS, 6 PsA and 3 undifferentiated spondyloarthritis. Table I. Regarding spondyloarthritis diagnosis, IBD appeared afterwards in 15 patients with an average time of development of 8.39±8 years, previously in 7 and was simultaneous in 3. The fecal calprotectin was >200µg/g in 17 patients (68%), normal (<50µg/g) in 1 and between 50-200µg/g in 7. The incidence rate adjusted for follow-up of the 25 cases was 7.7 cases/1000 patients-year.
At the time of the IBD onset, 6 patients were with BT. Table II. The BT had been initiated the previous 12 months in 5 of them. The incidence rate adjusted for follow-up of the 6 cases of IBD after BT was 1.83 cases/1000 patient-years.
Conclusions. In our series, IBD was observed in 9.26% of patients with spondyloarthritis of which 64% were AS. The most frequent form was CD and it was diagnosed after spondyloarthritis in 60% of the cases. 6 patients (2.22%) were with BT at the time of IBD onset. High fecal calprotectin (>200µg/g) was observed in the majority of patients.

P114. Table I.

	AS (n=16, 64%)	PsA (n=6, 24%)	uSpa (n=3, 12%)	TOTAL= 25
MEN/WOMEN	14/2	4/2	2/1	**20/5** (80%/20%)
AGE AT THE DX OF IBD (average in years)	37.56	45.8	34	**39.12**
HLA B27+ (n, patients)	13	1	1	**15** (60%)
CD/UC/IC (n, patients)	9/6/1	2/2/2	2/1/0	**13/9/3** (52%/36%/12%)
ESR (average in mm1ª h)	30.07	39.75	21.5	**31.15**
CPR (average in mg/dL)	2.44	3.08	3.42	**2.7**
FC (average in µg/g) *(24 patients with levels >50 included)*	369.2	409.67	1009	**459.29**
BEFORE / SIMUL / AFTER	6/2/8	0/0/6	1/1/1	**7/3/15**
(IBD in relation to the diagnosis of SpA)				(28%/12%/60%)
BT AT THE DX OF IBD (n, patients)	3	2	1	**6** (24%)
BT	ETN (n=1), IFX (n=1), SCK (n=1)	ADA (n=1), UST (n=1)	ETN (n=1)	**ETN (n=2), IFX (n=1), ADA (n=1), SCK (n=1), UST (n=1)**

IBD: inflammatory bowel disease; AS: ankylosing spondylitis; PsA: psoriatic arthritis; uSpA: undifferentiated spondyloarthritis; CD: Crohn´s disease; UC: ulcerative colitis; IC: indeterminate colitis; ESR: erythrocyte sedimentation rate; CPR: C-reactive protein; FC: fecal calprotectin; BEFORE/SIMUL/AFTER: before the diagnosis of SpA/simultaneously/after; DX: diagnosis; BT: biological therapy; ETN: etancercept; ADA: adalimumab; IFX: infliximab; SCK: secukinumab; UST: ustekinumab.

P114. Table II.

	Patients (n)	IBD development after BT (n)	IBD development after BT (%)
ETN	57	2	3.5%
ADA	98	1	1.02%
IFX	36	1	2.78%
SCK	22	1	4.54%
UST	15	1	6.67%
CZP	25	0	0%
GLM	15	0	0%
VDZ	2	0	0%
TOTAL	270	6	2.22%

BT: biological therapy; IBD: inflammatory bowel disease; ETN: etanercept; ADA: adalimumab; IFX: infliximab; SCK: secukinumab; UST: ustekinumab; CZP: certolizumab; GLM: golimumab; VDZ: vedolizumab.

P115

INTESTINAL PERMEABILITY IN SPONDYLOARTHRITIS: A SYSTEMATIC REVIEW OF THE LITERATURE

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Background. Growing evidence argue for a role of the gut in the pathophysiology of spondyloarthritis (SpA). This so-called "gut-joint axis" involves dysbiosis, bacterial translocation, intestinal inflammation and increase in intestinal permeability.
Objectives. To analyse the available data on intestinal permeability in SpA patients and the effects of drugs such as non-steroidal anti-inflammatory drugs (NSAIDs) on intestinal permeability.
Methods. A systematic review was conducted through September 1, 2020: Medline, Embase and Cochrane. Studies with patients with SpA assessing the intestinal permeability were selected. Some of the included studies have assessed the effect of NSAIDs on intestinal permeability.
Results. A total of 12 studies were included in the final analysis, involving a total of 268 SpA patients, including 240 ankylosing spondylitis (AS). Among the studies included, four studies used the lactulose/mannitol test, four studies used the 51Crethylenediaminetetraacetic test and two studies used the polyethylene glycols test. Nine of the 12 studies reported increased intestinal permeability regardless on the method used for intestinal permeability evaluation. Four studies evaluated the link between disease activity, assessed by CRP and ESR levels, and intestinal permeability and showed no correlation between increased intestinal permeability and markers of disease activity in AS patients. As regards the effects of NSAIDs on intestinal permeability, data are controversial. Two studies, including one evaluating indomethacin, did not show any influence of NSAIDs in AS patients, one study showed an increase in intestinal permeability under NSAIDs in only 60% of the patients, another study reported increased intestinal permeability. When comparing the effect of NSAIDs in patients with AS to healthy subjects, one study reported a comparable NSAIDs-induced increase in intestinal permeability in both groups.
Conclusion. The results of our review suggest that increased intestinal permeability is present in SpA patients even in the absence of NSAIDs use and regardless of the method used to assess intestinal permeability. The effects of NSAIDs on intestinal permeability in SpA is more controversial and further studies are needed.

P116

ASSOCIATION OF GUT DYSBIOSIS WITH RADIOGRAPHIC AND ENTHESIS INVOLVEMENT AND DISEASE ACTIVITY IN AXIAL SPONDYLOARTHRITIS. DATA FROM CASTRO REGISTRY

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Aim. To determine the alterations in the gut microbiota in AxSpA patients. To evaluate whether changes in the gut microbiota in AxSpA patients are associated with radiographic and enthesis involvement or disease activity.
Methods. Cross-sectional study of 33 patients with AxSpA and 7 healthy donors (HDs) was studied. C-reactive protein and Erythrocyte Sedimentation Rate were measured. Enthesis involvement was evaluated by the Madrid Sonographic Enthesitis Index (MASEI). Gut microbiota was evaluated by Ion Torrent S5 platform and the sequences were processed using QIIME2 platform. Mann-Whitney tests were used for quantitative variables.
Significant differences $p<0.05$.
Results. A significant increase in species *Faecalibacterium prausnizii* and a decrease in the species *Bacteroides ovatus* and *Bacteroides plebeius* were observed in AxSpA patients *versus* HDs.
AxSpA patients were divided in two groups: active and inactive disease. α diversity (measured by Shannon index, $p=0.044$) was significantly decreased in patients with active disease (ASDAS >2.1). Species *Bacteroides plebeius* and *Bacteroides finegoldii* were significantly decreased, while *Bifidobacterium longum* and *Eubacterium hadrum* were significantly increased in active group *versus* inactive.
Furthermore, *Peptostreptococcaceae* and *Streptococcaceae* and genus *Clostridium* were significantly increased in pathological enthesis ultrasonography patients (MASEI >17) *versus* normal enthesis patients.
Finally, AxSpA patients were divided in radiographic AxSpA and non-radiographic AxSpA. A significant increase in *Lactobacillaceae* and *Bacteroides dorei* and a decrease in *Oxalobacteraceae, Herbaspirillum* and *Bacteroides plebeius* were observed in radiographic AxSpA *versus* non-radiographic AxSpA.
Conclusions. 1) AxSpA patients had a significant alteration of the gut microbiota. 2) These alterations were associated with disease activity, enthesis and radiographic involvement.

Funding. Funded by JA PI-0151-2018 and FIS PI19/00701.

P116. Table I. Microbial composition between AxSpA and HD. Values are expressed as relative abundance (sqrt/arcsin).

	AxSpA patients (n=33)	Healthy donors (n=7)	p
Species			
Bacteroides ovatus	0.0046 (0.0085)	0.011 (0.014)	0.024
Bacteroides plebeius	0.025 (0.053)	0.096 (0.16)	0.048
Faecalibacterium prausnitzii	0.11 (0.061)	0.069 (0.058)	0.043

P116. Table II. Microbial composition according to disease activity, radiographic and enthesis affectation. Values are expressed as relative abundance (sqrt/arcsin).

	Active (n=16)	Inactive (n=17)	p
Species			
Bacteroides finegoldii	0.0018 (0.0057)	0.0071 (0.0088)	0.026
Bacteroides plebeius	0.0032 (0.0011)	0.046 (0.069)	0.044
Bifidobacterium longum	0.0052 (0.0059)	0.0013 (0.0021)	0.034
Eubacterium hadrum	0.013 (0.012)	0.0049 (0.012)	0.026
	Pathological enthesis (n=9)	Normal enthesis (n=18)	p
Family			
Peptostreptococcaceae	0.011 (0.018)	0.0012 (0.0021)	0.029
Streptococcaceae	0.0071 (0.0011)	0.00024 (0.00034)	0.008
Genus			
Clostridium	0.030 (0.014)	0.016 (0.0062)	0.014
	Radiographic (n=28)	Non-Radiographic (n=5)	p
Family			
Lactobacillaceae	0.0054 (0.00061)	0.0012 (0.0017)	0.048
Oxalabacteraceae	0.0032 (0.0058)	0.012 (0.12)	0.026
Genus			
Herbaspirillum	0.0044 (0.0085)	0.014 (0.014)	0.032
Species			
Bacteroides dorei	0.058 (0.10)	0.00 (0.00)	0.032
Bacteroides plebeius	0.020 (0.052)	0.048 (0.062)	0.026

P117

STUDY OF MICROBIOTA CONTRIBUTIONS TO GUT & JOINT DISEASE USING TRANSGENIC GERM-FREE MOUSE TECHNOLOGY

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The intestinal microbiota contribute to various aspects of host physiology, including metabolism and immunity. Inflammatory diseases, such as IBD and SpA, are associated with changes in microbiota composition and structure, termed dysbiosis. It is still largely unclear whether dysbiosis develops in response to inflammation, or actively contributes to disease onset and progression, or both. To investigate causality, we developed two transgenic mouse models of arthritic disease based on either myeloid deletion of the anti-inflammatory gene *A20* ($A20^{myel\text{-}KO}$), or alternatively by overexpressing the inflammatory cytokine TNF (TNF^{DARE}). Both $A20^{myel\text{-}KO}$ and TNF^{DARE} mice are rederived in germ-free condition, and display a distinct phenotype in the gut and joints, compared to their microbially colonized counterparts. Absence of inflammation under germ-free conditions indicates a microbial-dependency for disease development, while disease persistence indicates microbiota independent mechanisms and sterile disease drivers. $A20^{myel\text{-}KO}$ and TNF^{DARE} are ideal models to investigate these mechanisms in more detail.

P118

NEW BIOLOGIC AND TARGETED SYNTHETIC DMARDS FOR THE TREATMENT OF PSA. HOW ARE THEY POSITIONED IN CLINICAL PRACTICE?

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Introduction. The treatment options for PsA have recently broaden, including new bDMARDs blocking the IL-23/IL-17 pathway and targeted synthetic (ts) DMARDs (JAKi). The positioning of these newer therapies in PsA therapeutic algorithm is still debatable. In Portugal, ustekinumab-UST (anti-IL-12/23 p40), secukinumab-SEC (anti-IL-17A), and tofacitinib-TOFA (JAKi) are now approved and reimbursed for the treatment of PsA patients.
Objective. To describe the prescription-line of new bDMARDs and tsDMARDs for PsA patients in daily clinical practice and to evaluate their effectiveness and reasons for discontinuation at 12 months of follow-up.
Methodology. PsA patients, registered at the Portuguese Rheumatic Diseases Register (Reuma.pt) treated with UST, SEC and TOFA were identified in three Portuguese Centres. Demographic and disease activity parameters (baseline and first 12 months of treatment) were assessed, as well as any registered adverse events.
Results. 60 patients were included. Forty patients received SEC, 18 UST and two TOFA. In 17/60 patients new b/tsDMARDs were prescribed as first therapeutic line; 11/60 as second line, 11/60 as third line and 21/60 as fourth or later therapeutic lines. Evaluating switches from non-naïve patients, all patients received previously an anti-TNF as first line of therapy except one patient under SEC that had previously been treated with UST. At baseline the mean (SD) DAPSA was of 24.7 (±13.1) and DAS 28-4V of 4.85±2.3. After 12 months of follow-up DAPSA and DAS28 4v decreased to 11.2 (±4.31) and 3.17±1.73, respectively in this population. Five/40 patients under SEC have discontinued therapy for therapeutic inefficacy. Additionally, twelve/29 patients discontinued UST. (Table I)
Conclusion: In this population, new bDMARDs were prescribed after bDMARDs failure in 2/3 of the cases. Real-world data provides evidence of effectiveness and safety. The long-term comparative effectiveness with TNFis is now required to understand how to position these new b/tsDMARDs in clinical practice.

P118. Table I. Baseline characteristics of PsA patients treated with ustekinumab and secukinumab.

Age (years)* mean (SD)	47±12.1
Male gender, n (%)	19 (31.7)
Disease duration (years±SD)	12.9±11.9
PsA subtypes	
Distal interphalangeal joint-predominant arthritis, n (%)	4 (6.7)
Symmetric polyarthritis-predominant arthritis, n (%)	41 (68.3)
Asymmetric oligoarthritis or monoarthritis, n(%)	11 (18.3)
Axial disease predominant spondylitis and/or sacroiliitis, n(%)	4 (6.7)
Arthritis mutilans, n (%)	0
PsA Disease activity	
DAPSA, mean (SD)	24.7 (±13.2)
DAS28, mean (SD)	4.85 (±2.3)
Treated with secukinumab, n (%)	40 (66.7)
Treated with ustekinumab, n (%)	18 (30)
Treated with tofacitinib, n(%)	2 (3.3)
1st line with SEC or UST (naives), n, (%)	17 (28.3)
Previous biologic DMARDs (experienced), n (%)	43 (71.3)
2nd line (1 switch), n (%)	11 (18.3)
3rd line (2 switches), n (%)	11 (18.3)
≥ 4th line (≥ 3 switches), n (%)	21 (35)

PsA: Psoriatic Arthritis; DAPSA: Disease Activity in Psoriatic Arthritis; DAS28 4v: Disease Activity Score 28 joints; SEC: secukinumab; UST: ustekinumab.

P119

STUDY OF PATIENTS TREATED WITH SECUKINUMAB IN THE SAME HOSPITAL THE LAST TWO YEARS

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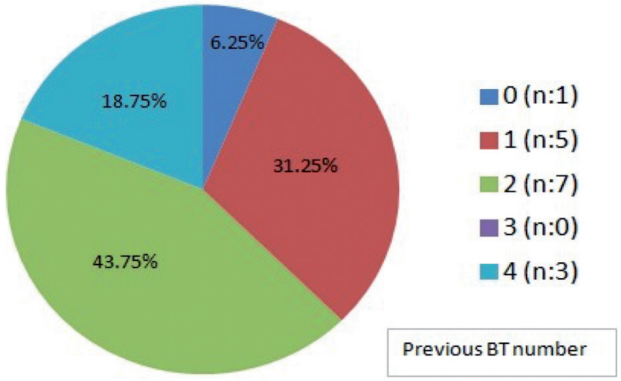
Introduction. Secukinumab is a biological therapy (BT), indicated for the treatment of axial or peripheral spondyloarthritis and psoriasis, used as an alternative after failure to conventional treatment.
Objectives. To describe the characteristics and activity rates of patients with spondyloarthritis that received Secukinumab.
Methods. Descriptive and retrospective study (January 2018 - December 2019) of patients who received Secukinumab.
Results. 30 patients with spondyloarthritis received Secukinumab and it was discontinued in 14 cases with a mean duration of treatment of 14.07±4 months. Among the 16 patients [AS (n:8), mixed PsA (n:5), axial PsA (n:1), peripheral PsA (n:1) and spondyloarthritis non-Rx axial (n:1)] who continued with Secukinumab, 9 were men (56.3%), mean age 50.4±11.4 years, mean spondyloarthritis duration 135.2±83.5 months and age at diagnosis 39±8 years. 10 patients were HLA-B27+. Skin involvement was found in 7 patients (43.8%), nail involvement in 6 (37.5%) and radiological damage in 14. Secukinumab was initiated in 14 cases due to previous BT inefficacy and in 1 due to an adverse effect (ETN). One patient started Secukinumab as first line, 5 as second BT, 7 as third and 3 as fifth line (Fig. 1). 11 patients had previously received scDMARD.
When initiating Secukinumab, 5 patients were treated with scDMARD and 2 with oral corticoids. We collect the basal parameters and after 3, 6, 12 and 24 months of treatment (Table I).
Conclusions. Secukinumab is an alternative treatment to be considered in patients who have not responded to scDMARD or previous BT. It has a rapid onset of action, providing improvement in clinical and analytical parameters after 3 months of treatment and maintaining the therapeutic response for at least 2 years. In our study, where the previous median exposure to BT was 2, Secukinumab was withdrawn in 14 patients, mainly due to inefficiency (87.5%). The adverse events observed were within the expected range.



P119. Fig. 1.

P120

COLLAGEN TURNOVER MARKERS ASSOCIATE WITH ACTIVE PSORIATIC ARTHRITIS AND DECREASE WITH GUSELKUMAB TREATMENT

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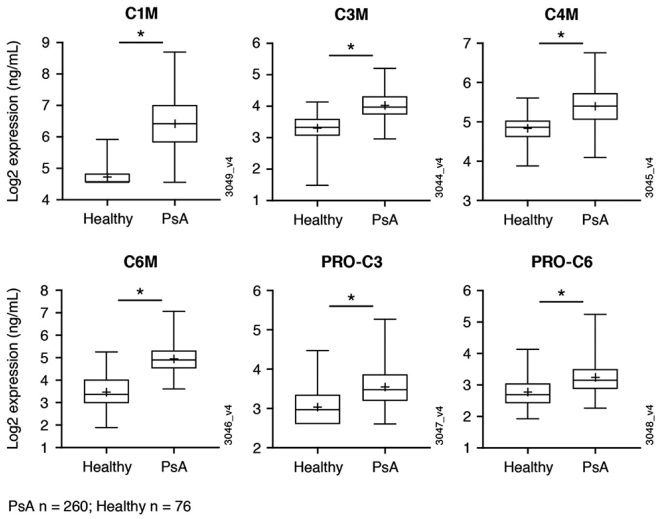
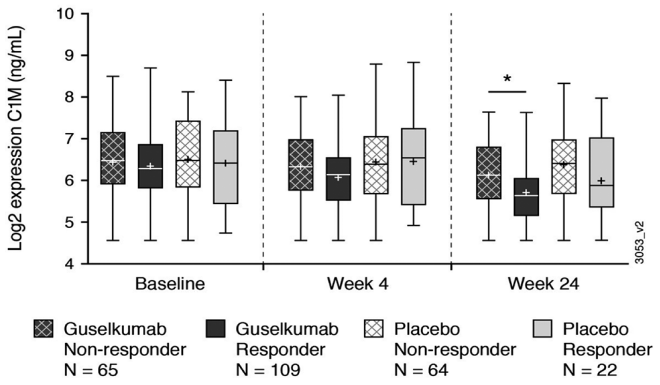
Introduction. Guselkumab (GUS), an interleukin-23p19-subunit monoclonal antibody, demonstrated efficacy vs placebo (PBO) in reducing skin and musculoskeletal signs and symptoms in patients with active psoriatic arthritis (PsA) in two phase-3 studies, DISCOVER-1 & DISCOVER-2, and in retarding structural damage in DISCOVER-2. We evaluated tissue-derived extracellular-matrix (ECM) products in serum of DISCOVER-2 PsA patients and their relationship with radiographic damage, clinical response, and treatment impact.
Methods. In DISCOVER-2, patients received GUS 100mg at Week (w) 0, 4, then every 8w (q8w); GUS 100mg q4w; or PBO. At w24, PBO subjects crossed-over to GUS q4w. 11 serum biomarkers of ECM collagen formation (PRO-C1-4/PRO-C6) and degradation (C1-4M/C6M/COL10) were measured (by Nordic Bioscience) in a subset of 260 DISCOVER-2 patients at w0, w4, w24, w52 and in 76 age-/sex-/ethnicity-matched healthy-controls. PsA patients were selected randomly, though enriching for subjects with greatest radiographic changes at w24 and w52. Significance was defined by $p<0.05$ and |fold difference| ≥1.25.
Results. At baseline, collagen degradation markers C1M/C3M/C4M/C6M and collagen formation markers PRO-C3/PRO-C6 were significantly higher in PsA patients vs matched controls (Fig. 1). Baseline C3M/C4M/C6M positively correlated with baseline skin and joint disease; baseline C1M/C3M/C4M/C6M/PRO-C1 positively correlated with baseline radiographic damage (data not shown). Levels of C1M (indicating breakdown of collagen type-I) were significantly decreased at w24 and w52, with significant differences between GUS 100mg q4w and PBO. Across treatment arms, no significant differences in baseline expression levels of the analytes were seen between w24 ACR20-responders vs non-responders. ACR20-responders in the combined GUS group had a significantly greater C1M reduction than non-responders (Fig. 2).
Conclusions. Collagen biomarkers in serum were dysregulated in PsA patients vs healthy-controls, and GUS impacts levels of these proteins. Importantly, C1M is a biomarker that tracks with joint response. The greater reduction in C1M in GUS ACR20-responders than non-responders provides insight into GUS effects on protecting bone from degradation in PsA.

P119. Table I.

	N	Dose (150/300 mg/month)	SJC (average)	TJC (average)	Dactylitis	Enthesitis	VAS (average)	PtGA (average)	ESR (average in mm1[a]h)	CRP (average in mg/L)	BASDAI (average)	DAPSA (average)	DAS28-ESR (average)	DAS28-CRP (average)
Basal	16	9/7	1.06	1.31	3	4	47.50	54.38	20.81	12.65	4.9	15.97	3.53	3.7
3 months	15	8/7	0.2	0.33	1	1	22	23.33	11.13	5.57	3.24	4.98	1.99	1.78
6 months	15	7/8	0	0.07	1	1	18	20	12.4	2.93	3.01	4.63	1.93	1.62
12 months	12	7/5	0	0.06	0	0	18.33	18.33	12.83	2.82	2.72	4.18	2.14	1.63
24 months	11	6/5	0	0.09	0	0	13.84	13.84	14.18	2.24	1.73	2.91	2.06	1.63



P120. Fig. 1. Upregulation of collagen degradation/formation biomarkers are detected in the serum of PsA subjects compared to healthy controls.
Healthy controls have been demographically matched (age, sex, race/ethnicity) to PsA cohort. Median values (+ marks mean). boxes represent the interquartile range, whisk-e3rs the minimum and maximum.
*Indicates significance defined by l fold change l ≥1.25 and FDR adjusted p<0.05.



P120. Fig. 2. C1M Reductions by ACR20 Response.
Response defined by ACR20 at Week 24. Median values (+ marks mean).
Boxes represent the interquartile range, whiskers the minimum and maximum.
*p=0.0065, significance between responder and non-responder defined by p<0.05 and l fold difference l ≥1.25.

P121

INTEGRATED SAFETY RESULTS OF TWO PHASE-3 TRIALS OF GUSELKUMAB IN PATIENTS WITH PSORIATIC ARTHRITIS THROUGH THE PLACEBO-CONTROLLED PERIODS

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Introduction. DISCOVER-1&2 are phase-3 psoriatic arthritis (PsA) trials investigating guselkumab (GUS), an IL-23-inhibitor that specifically binds the IL-23p19 subunit. We presented safety data pooled across DISCOVER-1&2 through Week (W)24.

Methods. Adult patients with active PsA despite standard therapy were enrolled. Patients were biologic-naïve, except ~30% in DISCOVER-1 with previous exposure to 1-2 TNF inhibitors. Patients were randomized to SC GUS 100mg every 4 weeks (Q4W); GUS 100mg at W0, W4, then Q8W; or placebo. Adverse events (AEs) and clinical laboratory findings were pooled across DISCOVER-1&2.
Results. The rates of patients experiencing ≥1 AE, serious AE, infection, serious infection, and AE leading to study agent discontinuation were similar between GUS and placebo. There were 2 deaths, 3 malignancies, 2 Major Adverse Cardiac Events (MACE), and no opportunistic infections (treatment group not reported to maintain blinding). Among AEs reported by ≥5% patients in any group, nasopharyngitis and elevated ALT/AST were more common with GUS vs placebo (Table I). ALT/AST elevations were mostly mild, transient, and not associated with significant bilirubin elevation. There was a trend to decreased neutrophil count (mostly Grade 1, transient, and not associated with infection) with GUS vs placebo (Table II). Injection-site reactions and anti-drug antibody development were uncommon (Table I).
Conclusions. GUS was safe and well tolerated through the placebo-controlled period in 2 randomized, phase-3 trials of PsA patients, with no meaningful differences between dosing regimens or between GUS and placebo and no safety signals related to infections, malignancy, or MACE. The safety profile of GUS Q4W and Q8W in PsA patients was generally consistent with that in Phase-3 trials of GUS Q8W for psoriasis.

P121. Table I. Patient reported AEs, n (%).

	GUS 100 mg Q8W	GUS 100 mg Q4W	PBO
N	*375*	*373*	*372*
≥1 AE	182 (48.5)	182 (48.8)	176 (47.3)
≥1 Serious AE	7 (1.9)	8 (2.1)	12 (3.2)
Discontinuation due to AE	5 (1.3)	8 (2.1)	7 (1.9)
≥1 Infection	73 (19.5)	80 (21.4)	77 (20.7)
≥1 Serious infection	1 (0.3)	3 (0.8)	3 (0.8)
≥1 Opportunistic Infection (including Candida)	0	0	0
Active Tuberculosis	0	0	0
≥1 Injection-site reaction	5 (1.3)	4 (1.1)	1 (0.3)
Anti-GUS antibody +, n/N (%)	6/373 (1.6)	9/371 (2.4)	--
AEs* reported by ≥5% of patients in any treatment group			
Nasopharyngitis	26 (6.9)	19 (5.1)	17 (4.6)
Upper respiratory tract infection	13 (3.5)	23 (6.2)	17 (4.6)
Increased ALT	23 (6.1)	28 (7.5)	14 (3.8)
Increased AST	23 (6.1)	14 (3.8)	9 (2.4)
* Medical Dictionary for Regulatory Activities (MedDRA) preferred term			

P121. Table II. Lab results*.

	GUS 100 mg Q8W	GUS 100 mg Q4W	PBO
N	*373*	*371*	*370*
ALT Increased (%)			
Grade 1	28.2	35.0	30.1
2	1.1	2.7	1.4
3-4	0.8	1.1	0.8
Neutrophil Count Decreased (%)			
Grade 1	5.6	5.9	3.2
2	1.6	1.6	0.8
3-4	0	0.3	0.3
*NCI toxicity grade ALT=Alanine aminotransferase			

P122

GUSELKUMAB PROVIDES DOMAIN-SPECIFIC AND COMPREHENSIVE EFFICACY AS ASSESSED USING COMPOSITE ENDPOINTS IN PATIENTS WITH ACTIVE PSORIATIC ARTHRITIS

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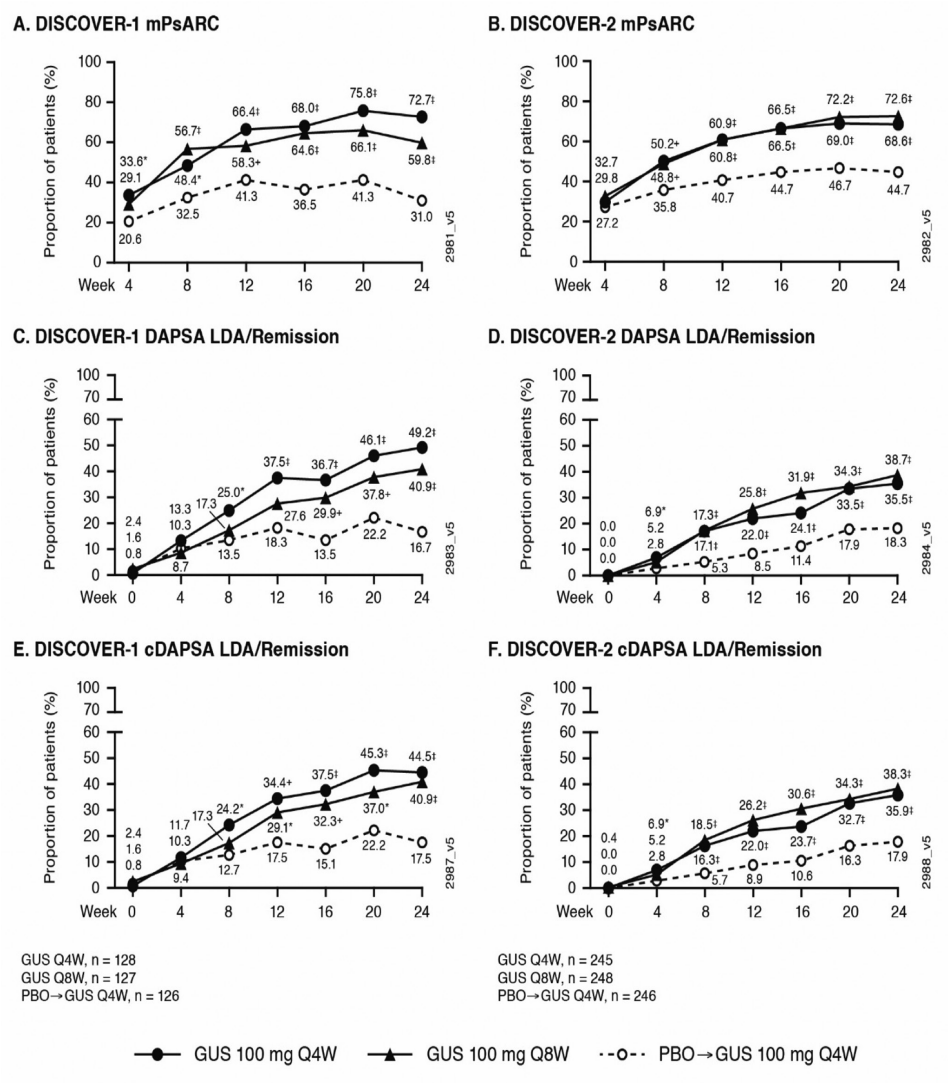
Introduction. Guselkumab (GUS) is a human monoclonal antibody that specifically binds to the IL-23p19-subunit. We assessed GUS efficacy through W24 in Phase-3 trials (DISCOVER-1&2) of PsA patients utilizing composite indices.

Methods. Patients had active PsA (DISCOVER-1: ≥3 swollen & ≥3 tender joints, CRP ≥0.3mg/dL; DISCOVER-2: ≥5 swollen & ≥5 tender joints, CRP ≥0.6mg/dL) despite standard therapies. 31% of DISCOVER-1 patients received 1-2 prior TNF-inhibitors; DISCOVER-2 patients were biologic-naïve. Patients randomly (1:1:1) received GUS 100mg every-4-weeks (Q4W); GUS 100mg at W0/W4/Q8W; or placebo. Composite indices included: Psoriasis Disease Activity Score (PASDAS), Minimal Disease Activity (MDA), Very Low Disease Activity (VLDA), Modified Psoriatic Arthritis Responder Criteria (mPsARC), Disease Activity Index for Psoriatic Arthritis (DAPSA), and clinical DAPSA (cDAPSA; excluding CRP). Rates of achieving PASDAS Low/Very Low Disease Activity, MDA, VLDA, DAPSA/cDAPSA Remission were pooled across studies (Fig. 1-2 for response criteria). GUS vs placebo comparisons employed a Cochran-Mantel-Haenszel test with baseline stratification factors or Fisher's exact test. Patients with missing data were imputed as nonresponders. P-values were not adjusted for multiplicity.

Results. Baseline characteristics in DISCOVER-1 (n=381) and DISCOVER-2 (n=739) reflected moderate-to-severe disease activity. Across studies, GUS vs placebo differences were observed as early as W8 and continued to increase over time when employing the joint-focused mPsARC or DAPSA LDA/Remission indices. Response rates were similar with cDAPSA and DAPSA (Fig. 1). Higher proportions of GUS than placebo-treated patients achieved PASDAS, MDA, VLDA, and DAPSA/cDAPSA remission (Fig. 2).

Conclusions. Regardless of composite index employed or study population assessed, GUS provided robust benefits to patients with active PsA across multiple domains, indicating that GUS may offer a novel mechanism to treat the diverse PsA manifestations.



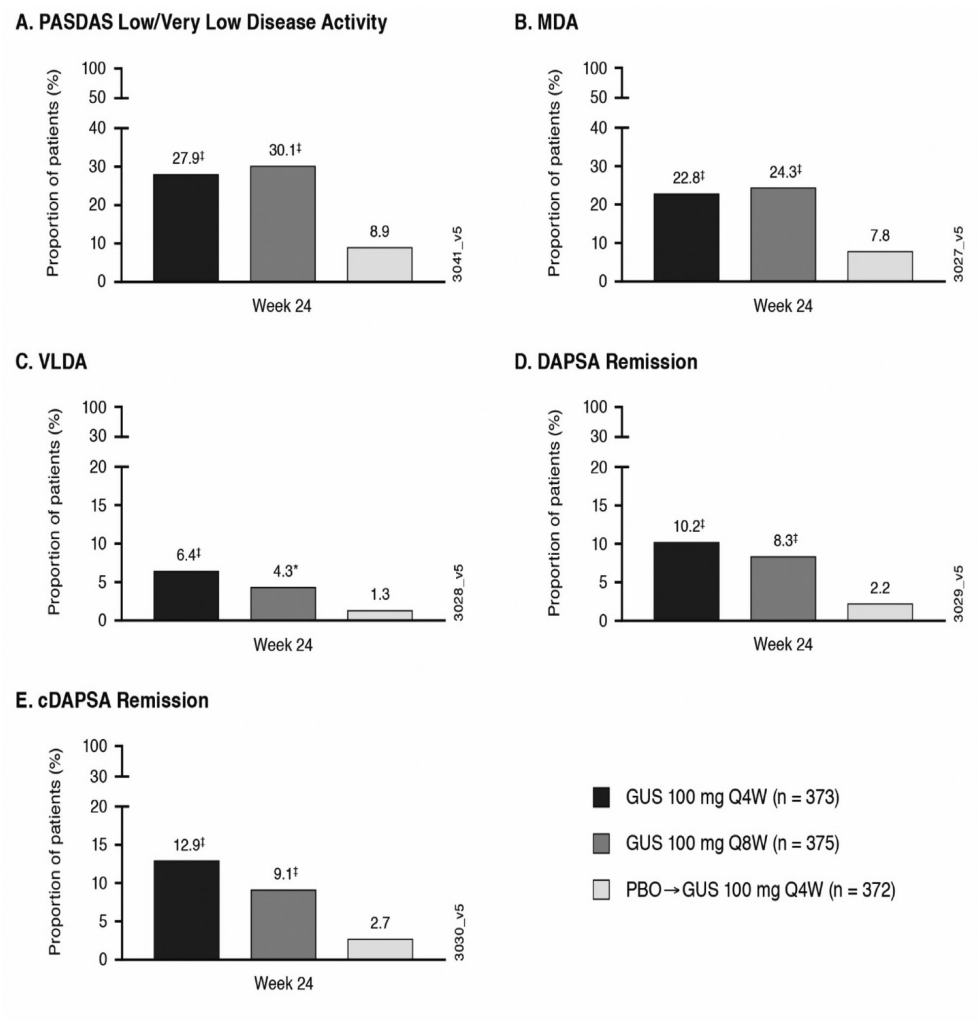
P122. Fig. 1. Proportions of DISCOVER-1 and DISCOVER-2 patients Achieving mPsARC[a] Response (**A**, **B**), DAPSA LDA/Remission[b] (**C**, **D**), and cDAPSA LDA/Remission[b] (**E**, **F**) Through Week 24.

Missing data imputed as nonresponse.

*, +, ‡ $p < 0.05$, 0.01, 0.001, respectively, vs placebo. Unadjusted (nominal) p values are not controlled for multiplicity and are descriptive/supportive only; no statistical significance should be implied.

a mPsARC response defined as ≥2 of 4 criteria (≥30% decrease in swollen joint count, ≥30% decrease in tender joint count, ≥20% improvement in patient's Global Assessment of Disease Activity (arthritis) on a visual analog scale [VAS], 20% improvement in physician's Global Assessment of Disease Activity on a VAS), and ≥1 joint criteria with no deterioration in the other criteria.

b The DAPSA score sums tender joint count (0–68), swollen joint count (0–66), CRP (mg/dL), patient assessment of pain (0–10 VAS), and patient global assessment of disease activity (arthritis, 0–10 VAS). DAPSA LDA/Remission: ≤14. The cDAPSA score excludes CRP. cDAPSA LDA/Remission: ≤13.



P122. Fig. 2. Proportions of Pooled DISCOVER-1 and DISCOVER-2 <Patients Achieving PASDAS Low/Very Low Disease Activity[a] (**A**), MDA[b] (**B**), VLDA[c] (**C**), DAPSA Remission[d] (**D**), and cDAPSA Remission[d] (**E**) at Week 24.

Missing data imputed as nonresponse.

*, +, ‡ $p < 0.05$, 0.01, 0.001, respectively, vs placebo. Unadjusted (nominal) p values are not controlled for multiplicity and are descriptive/supportive only; no statistical significance should be implied.

a PASDAS calculated from the patient global assessment of arthritis and psoriasis (0-10 VAS), physician global assessment (0-10 VAS), swollen joint count (0-66), tender joint count (0-68), CRP, enthesitis score (measured by the Leeds Enthesitis Index), tender dactylitis count, and the 36-item Short-Form Health Survey Physical Component Summary Score. PASDAS Very low (≤1.9)/low (>1.9 to ≤3.2).

b MDA achieved if ≥5 of 7 criteria met (tender joint count ≤1, swollen joint count ≤1, psoriasis activity and severity index ≤1, patient's assessment of pain ≤15, patient's global assessment of disease activity ≤20, HAQ-DI score ≤0.5, tender entheseal points ≤1).

c VLDA achieved if 7/7 of the MDA criteria met

d The DAPSA score sums tender joint count (0–68), swollen joint count (0–66), CRP (mg/dL), patient assessment of pain (0–10 VAS), and patient global assessment of disease activity (arthritis, 0–10 VAS); DAPSA Remission: ≤4. The cDAPSA score sums tender joint count (0–68), swollen joint count (0–66), patient assessment of pain (0–10 VAS), and patient global assessment of disease activity (arthritis, 0–10 VAS); cDAPSA Remission: ≤4.

P123

EFFICACY OF GUSELKUMAB ON AXIAL-RELATED ENDPOINTS IN PATIENTS WITH ACTIVE PSORIATIC ARTHRITIS WITH IMAGING-CONFIRMED SACROILIITIS

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Introduction. Guselkumab (GUS), an interleukin-23 inhibitor, improved axial symptoms of active psoriatic arthritis (PsA) through Week (W)24 in pooled analyses from two phase-3 trials (DISCOVER-1&2). We assessed GUS efficacy through 1-year in DISCOVER-1&2 PsA patients with imaging-confirmed sacroiliitis.

Methods. In DISCOVER-1 (N=381; ≥3 swollen, ≥3 tender joints, CRP≥0.3mg/dL) and DISCOVER-2 (N=739; ≥5 swollen, ≥5 tender joints, CRP≥0.6mg/dL) patients with active PsA were randomized (1:1:1) to GUS 100mg Q4W, GUS 100mg at W0/W4/Q8W; or placebo. Placebo patients crossed over to GUS 100mg Q4W at W24. Patients with imaging-confirmed sacroiliitis were pooled across DISCOVER-1&2. Efficacy was assessed through W52 by changes in BASDAI, modified-BASDAI (mBASDAI; excluding Q#3), spinal pain (BASDAI Q#2), & ASDAS(-CRP) scores, and achievement of BASDAI50 and ASDAS responses (inactive disease: <1.3, major improvement: decrease≥2.0, clinically important improvement: decrease≥1.1), employing nonresponder imputation. HLA-B27 was assayed in a subset of 190 patients.

Results. 312 patients had imaging-confirmed sacroiliitis (Table I). Mean baseline BASDAI and ASDAS scores ranged from 6.5-6.6 and 3.9-4.0, respectively; of 190 patients evaluated, 30% / 70% were HLA-B27+ / HLA-B27- Improvements in PsA axial symptoms were greater in the GUS Q4W and Q8W groups vs placebo through W24. LS mean changes from baseline in BASDAI/spinal pain/mBASDAI/ASDAS scores were maintained from W24 to W52 in GUS groups (Table I). Results were consistent when assessing proportions of patients achieving BASDAI50 (Table I) and ASDAS responses of inactive disease, major improvement, and clinically important improvement (Fig. 1); and in HLA-B27+/HLA-B27- patients.

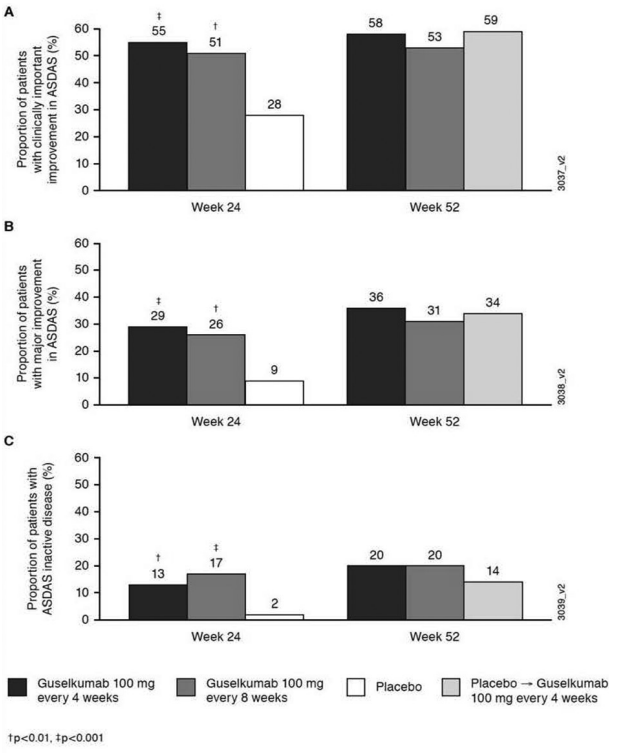
Conclusions. Improvements in axial symptoms were maintained through W52 in GUS-treated patients with active PsA with imaging-confirmed sacroiliitis.

P123. Table I. Efficacy results of GUS at weeks 24 and 52 in PsA patients with axial involvement.

	GUS 100 mg every 4 weeks (n=103)	GUS 100 mg every 8 weeks (n=91)	PBO →GUS 100 mg every 4 weeks (n=118)
Week 24[b]			
LS Mean change in BASDAI (0-10)	-2.7*	-2.7*	-1.3
LS Mean change in spinal pain[c]	-2.5*	-2.7*	-1.2
LS Mean change in modified BASDAI[d]	-2.6*	-2.7*	-1.4
BASDAI50[e], %	(38%) 36/95**	(40%) 34/84 **	(19%) 21/110
LS Mean change in ASDAS	-1.4*	-1.4*	-0.7
Week 52[b]			
LS Mean change in BASDAI (0-10)	-3.1	-2.8	-2.8
LS Mean change in spinal pain[c]	-3.0	-2.7	-2.7
LS Mean change in modified BASDAI[d]	-3.1	-2.7	-2.8
BASDAI50[e], %	48% (46/95)	43% (36/84)	49% (54/110)
LS Mean change in ASDAS	-1.7	-1.6	-1.6

[a]Patients with axial involvement consistent with sacroiliitis at baseline and either a history of imaging confirmation or pelvic radiograph at screening (pooled data from DISCOVER-1 & 2)
[b]For response endpoints, patients who met treatment failure rules or had missing data were counted as nonresponders through week 24; patients with missing data were counted as nonresponders from weeks 24-52. For changes in scores, a change of 0 was assigned for treatment failures through week 24, and patients who discontinued or had missing data were set to 0 for weeks 24-52.
[c]Question 2 of the BASDAI.
[d]Excludes question 3 of the BASDAI.
[e]In patients with BASDAI > 0 at baseline.

Unadjusted p-values as noted: *p < 0.001, ** p < 0.01. No statistical comparisons were performed at week 52.



P123. Fig. 1. Proportion of patients with ASDAS clinically important improvement, major improvement, and inactive disease.

P124

LOW DISEASE THRESHOLDS UP TO THREE YEARS IN IXEKIZUMAB-TREATED PATIENTS WITH PSORIATIC ARTHRITIS IN SPIRIT-P1 AND SPIRIT-P2

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Introduction/Aim. Ixekizumab (IXE), a high-affinity monoclonal antibody selectively targeting interleukin-17A, improves signs and symptoms of psoriatic arthritis (PsA).[2] Patients with PsA who sustain low disease thresholds with IXE over 3 years were explored.
Materials and Methods. Data from patients with PsA treated with IXE 80mg every 4 weeks (Q4W) or every 2 weeks (Q2W) after a 160-mg starting dose were examined post hoc. Patients (IXEQ4W, n=107; IXEQ2W, n=103) in SPIRIT-P1 (NCT01695239) were biologic-DMARD-naïve (1); patients (IXEQ4W, n=122; IXEQ2W, n=123) in SPIRIT-P2 (NCT02349295) had an inadequate response or intolerance to 1 or 2 TNF inhibitors (TNFi) (2). Beginning at Week 32, patients with inadequate response (less than 20% improvement in baseline from swollen/tender joints) discontinued treatment (3). Observed response rates were calculated for minimal disease activity (MDA), very low disease activity (VLDA), Disease Activity Index for PsA (DAPSA), Psoriatic Arthritis Disease Activity Score (PASDAS), low disease activity (LDA), and near remission (NR) up to 3 years.
Results. Patients who achieved low disease thresholds observed as early as Week 24 could sustain them through Week 156 (Fig. 1). Patients in SPIRIT-P1 (59%) and SPIRIT-P2 (48%) achieved MDA at 3 years with IXEQ4W. Patients (Q4W) who achieved VLDA at 3 years were 29% (SPIRIT-P1) and 23% (SPIRIT-P2). DAPSA LDA at 3 years was reported in 89% (SPIRIT-P1) and 74% (SPIRIT-P2) of patients (IXEQ4W). PASDAS LDA was reported in 64% of patients (IXEQ4W) at 3 years in each study. Approximately 30% of patients achieved PASDAS NR at 3 years with IXEQ4W in each study.
Conclusion. Patients with active PsA in SPIRIT-P1 and SPIRIT-P2 achieved low disease thresholds at Week 24, which were sustained for 3 years with ixekizumab, demonstrating consistency over time.

Acknowledgements. This study was sponsored by Eli Lilly and Company.

Disclosures. Arthur Kavanaugh is a consultant for Eli Lilly and Company. Philip Helliwell has received honoraria from Celgene Corporation. Carlos Sesin received honoraria from Eli Lilly and Company, Novartis, Amgen, Abbvie, Celgene, Pfizer, Radius Pharma, and Sanofi Genzyme. Laura C. Coates has consulted for AbbVie, Celgene, Janssen, Pfizer, UCB, Novartis, Eli Lilly and Company, Amgen, Biogen, Boehringer Ingelheim, Medac, and Gilead and has received grant/research support from AbbVie, Janssen, Celgene, Novartis, and Pfizer. Amanda M Gellett, Chen-Yen Lin, Aubrey Trevelin Sprabery, Vladimir Geneus, and Rebecca Bolce are employees and stockholders of Eli Lilly and Company. Rebecca Bolce and her spouse are stockholders in Eli Lilly and Company.

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P125

SECUKINUMAB REAL WORLD EVIDENCE: A MULTICENTRIC EXPERIENCE

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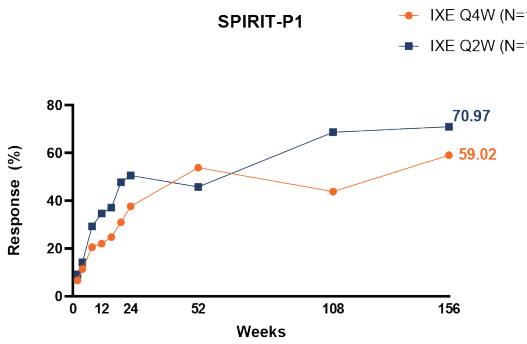
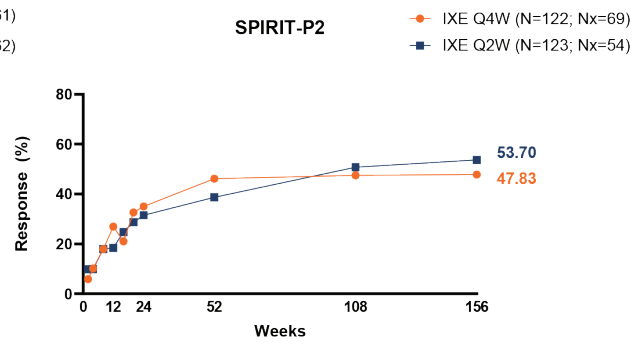
Introduction. Spondiloarthritides encompasses heterogenous diseases which share some common features. Ankylosing Spondylithis (AS) and Psoriatic arthritis (PsA) are major representatives of this group.Secukinumab is an IL-17 A inhibitor which has shown improvement of inflammatory activity and lower radiological progression in AS and PsA in randomized clinical trials. However Real World Evidence is scarce. Our aim is to evaluate secukinumab survival, retention rate and its associated factors in AS and PsA in real world evidence.

MDA[a]

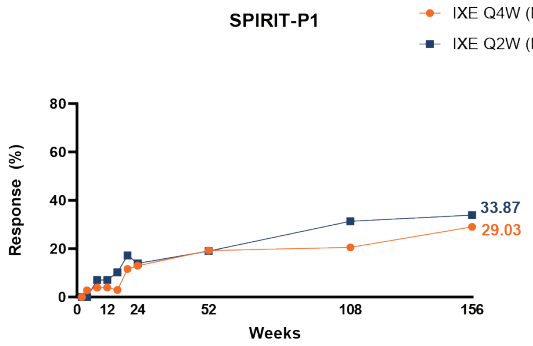


	Wk12	Wk 24	Wk 52	Wk 108	Wk 156
n, Q4W	100	85	78	73	61
n, Q2W	98	85	83	67	62

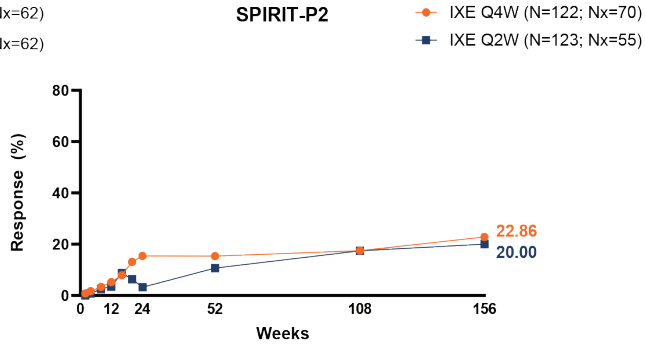


	Wk12	Wk 24	Wk 52	Wk 108	Wk 156
n, Q4W	115	97	91	80	69
n, Q2W	114	92	75	63	54

VLDA[b]

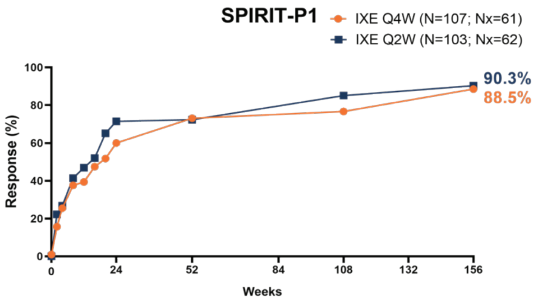


	Wk12	Wk 24	Wk 52	Wk 108	Wk 156
n, Q4W	101	85	78	73	62
n, Q2W	99	86	84	67	62

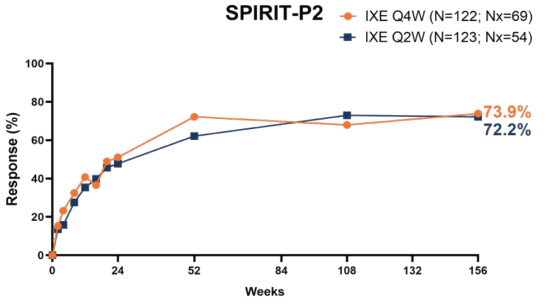


	Wk12	Wk 24	Wk 52	Wk 108	Wk 156
n, Q4W	115	97	91	80	70
n, Q2W	114	92	75	63	55

DAPSA LDA

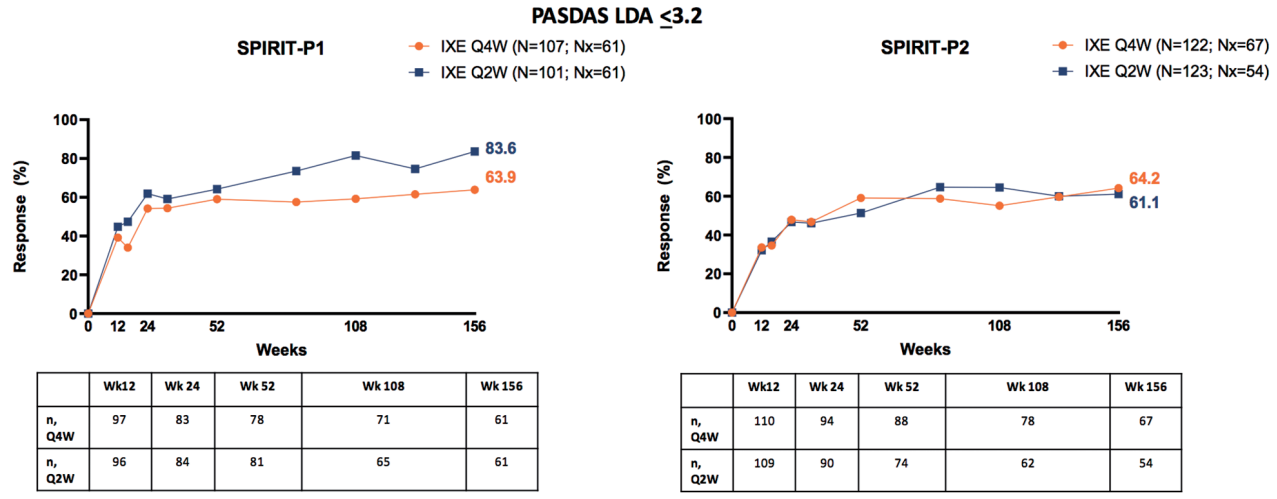


	Wk12	Wk 24	Wk 52	Wk 108	Wk 156
n, Q4W	99	85	78	73	61
n, Q2W	98	84	83	67	62



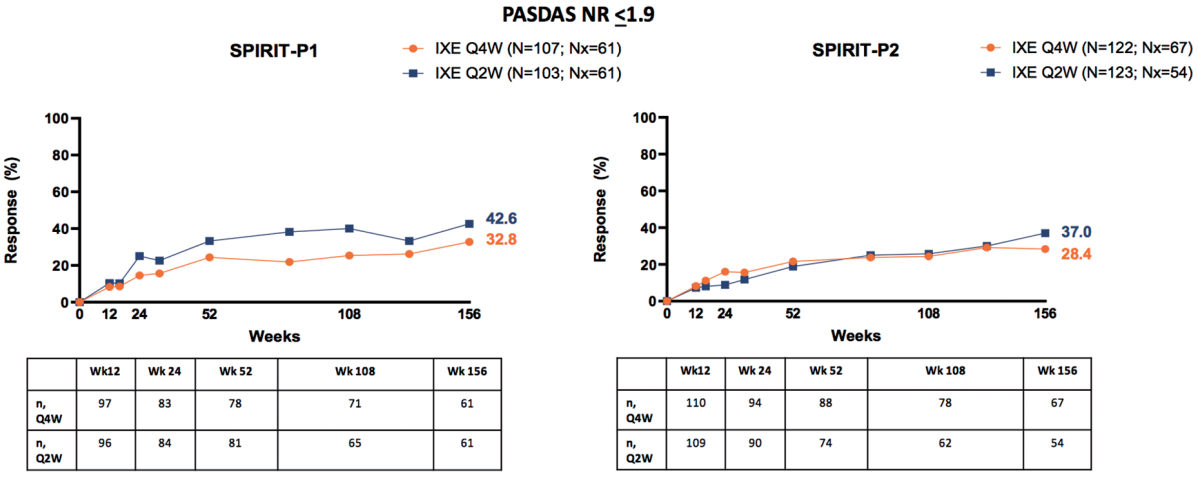
	Wk12	Wk 24	Wk 52	Wk 108	Wk 156
n, Q4W	113	96	90	78	69
n, Q2W	113	90	74	63	54

P124. Fig. 1. Low Disease Target Measures (MDA, VLDA, DAPSA LDA, PASDAS LDA, and PASDAS NR) as observed up to 3 years in IXE-treated in SPIRIT-P1 and SPIRIT-P2.



	Wk12	Wk 24	Wk 52	Wk 108	Wk 156
n, Q4W	97	83	78	71	61
n, Q2W	96	84	81	65	61

	Wk12	Wk 24	Wk 52	Wk 108	Wk 156
n, Q4W	110	94	88	78	67
n, Q2W	109	90	74	62	54



	Wk12	Wk 24	Wk 52	Wk 108	Wk 156
n, Q4W	97	83	78	71	61
n, Q2W	96	84	81	65	61

	Wk12	Wk 24	Wk 52	Wk 108	Wk 156
n, Q4W	110	94	88	78	67
n, Q2W	109	90	74	62	54

P124. Fig. 1. (continued). Data is presented as observed values.
[a]MDA was measured in terms of Coates Criteria (6 entheseal points). [b]VLDA was measured in terms of Coates Criteria (6 entheseal points).
DAPSA: Disease Activity Index for PsA; IXE Q2W: ixekizumab 80 mg every 2 weeks; IXE Q4W: ixekizumab 80 mg every 4 weeks; LDA: low disease activity; MDA: minimal disease activity; NR: near remission; Nx: number of patients with non-missing data at Week 156; PASDAS: Psoriatic Arthritis Disease Activity Score; VLDA: very low disease activity; Wk: week.

Methods. We conducted a retrospective longitudinal observational multicenter study. To assess drug survival starting dose date until closing or definitive treatment withdrawal date was recorded. Kaplan-Meier function was used to estimated drug survival and Wilcoxon test was used to compare survival rate between AS and PsA because the survival rate did not reach the median, and U-Mann Whitney was used to assess survival rate adjusted by poor prognostic factors. Chi-square test was performed to analyse relations between prognostic factors and retention rate, secukinumab global and particular effectiveness in AS and PsA.
Results. A total of 71 AS and PsA patients were included. Survival rate was 81.95% without difference between AS or PsA patients. We found no difference between naïve patients and those which were previously on TNF-inhibitor treatment (p=0-198). Interestingly there were no difference between patients receiving secukinumab monotherapy and those combining secukinumab and synthetic DMARDs (p=0.313).
Conclusion. Secukinumab is safe and effective drug for spondiloarthritides treatment. We have some promising data on monotherapy but our sample is small and we consider further studies are required.

P126

REVERSION OF ACTIVE MRI SACROILIITIS SYMPTOMS AFTER TOFACITINIB TREATMENT IN PSORIATIC ARTHRITIS PATIENTS

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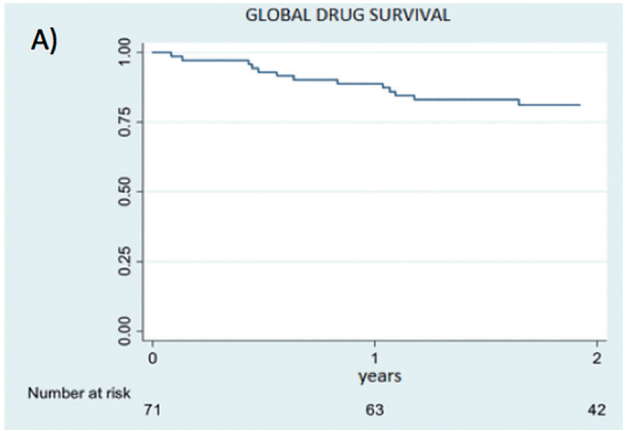
Introduction/Aim. Tofacitinib is an oral Janus kinase inhibitor. There is no data on its effect on active MRI sacroiliitis (MRI-SI) in psoriatic arthritis (PsA) patients. To study the effect of tofacitinib on MRI-SI in PsA patients.
Materials and Methods. 40 patients (F/M – 23/17) with active PsA fulfilling the CASPAR criteria were examined. Median (Me) age 41.0 [35.0; 50.0] years, Me PsA duration 6.0 [3.0; 10.0] years. Patients underwent a standard clinical examination of PsA activity. Me activity indixes: DAPSA 44.2 [37.8; 55.3], BASDAI 6.0 [4.2; 7.0], ASDAS 3.8 [2.8; 4.4]. Me CRP 21.3 [3.2; 72.3] mg/L. Enthesitis was observed in 65.9% of patients, dactylitis in 53.7% of patients. All 40 patients underwent sacroiliac joint (SIJ) MRI on scanner Siemens General Electric 1.5 TESLA. Bone marrow edema on MRI (STIR) was considered MRI-SI. MRI results were evaluated by 2 independent readers. Tofacitinib was given in 5 mg tablets bds during 6 months, afterwards 35 patients underwent SIJ MRI.
Results. Prior to tofacitinib therapy, MRI-SI was detected in 14 of 40 (35%) patients: bilateral in 9 patients, unilateral in 5. At the end of 6 months, MRI-SI was detected in 4 of 35 (11.4%) patients observed: in 1 patient with baseline bilateral MRI-SI and in 2 with unilateral MRI-SI. 1 patient showed negative dynamics: development of MRI-SI. The decrease in number of active MRI-SI patients is

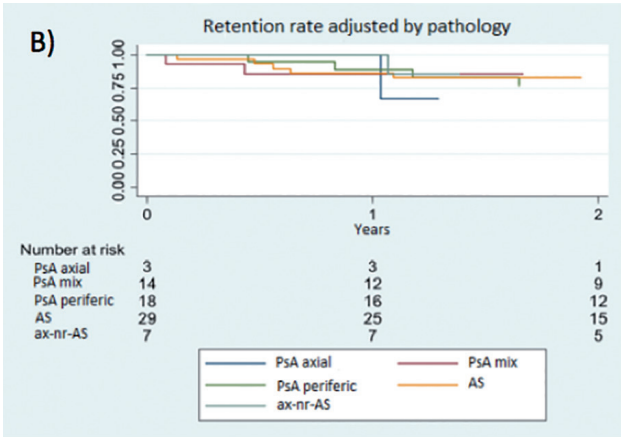
statistically significant (p=0.017). At baseline, inflammatory changes were detected in 23 of 80 (28.8%) SIJs, after 6 months of therapy in 5 of 70 (7.1%) SIJs observed. Decrease in number of SIJs with active inflammation is statistically significant ((p=0.001). At baseline, Me BASDAI 6.0 [4.2; 7.0], Me ASDAS 3.8 [2.8; 4.4]. After 6 months of treatment, Me BASDAI 1.4 [0.6; 3.2], Me ASDAS 1.5 [1.0; 2.1] ((p=0.001 for both comparisons).

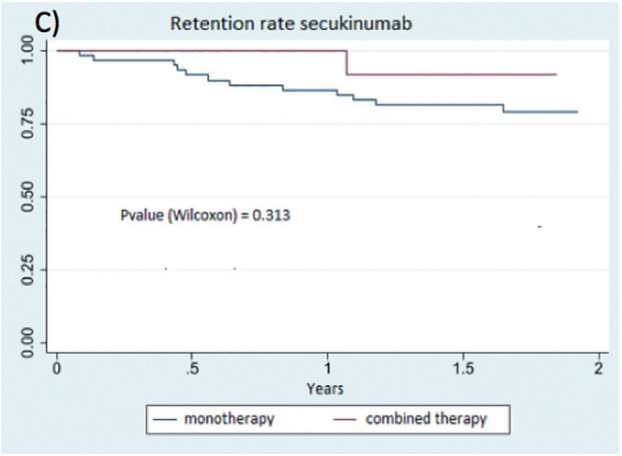
Conclusions. Tofacitinib therapy shows high efficacy in reducing MRI-SI and decreasing activity of axial involvement in PsA.

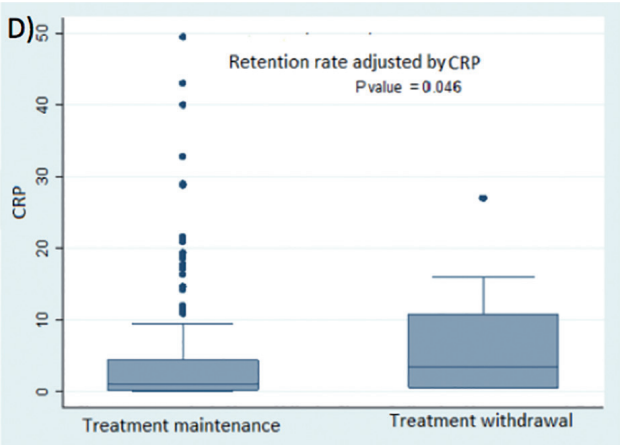
P125. Table I. Demographic, radiological and serological features. Brackets with percentual value. Square bracket number of available data. AS: ankylosing Spondylitis. PsA: Psoriatic arthritis. BMI: Body mass index, mean+/-SD. CVRF: cardiovascular risk factor; HBP: high blood pressure, DM: diabetes mellitus. DL: dyslipidemia. RF: rheumatoid factor, aCCP: cyclic citrullinated peptide antibody. MRI: magnetic resonance.

		AS	PsA	Total
n		36 (50.7)	35(49.29)	71
Gender				
Male		16 (44.44)	14 (40)	30 (42.25)
Female		20 (55.55)	21 (60)	41 (57.75)
Age		48.58±10.47	51.48±11.41	50.26±11.01
BMI		[28] 27.72±5.92	[13] 30.09±6.41	[41] 28.31±5.66
CVRF				
HBP		9 (25)	11 (31.42)	20 (28.16)
DM		3 (8.33)	3 (8.57)	6 (8.45)
DL		6 (16.66)	11 (31.42)	17 (23.94)
CVE		1 (2.77)	9 (25.71)	10 (14.08)
Smoking [69]				
Active		9 (25)	10 (28.57)	19 (27.54)
Former		6 (16.66)	7 (20)	13 (18.84)
Never		20 (55.55)	17 (48.57)	37 (53.62)
HLA B27	Positive	15 (41.66)	5 (14.28)	
	Negative	12 (33.33)	17 (48.57)	
	No data	9 (25.0)	13 (37.14)	
RF	Positive	1 (2.77)	3 (8.57	
	Negative	31 (86.11)	27 (77.14)	
	No data	4 (11.11)	5 (14.28	
aCCP	Positive	0	1 (2.86)	
	Negative	18 (50)	27 (77.14)	
	No data	18 (50)	5 (14.28)	
Axial		30 (83.33)	4 (11.43)	
Mix		0	18 (51.43)	
Periferal		0	13 (37.14)	
Non-radiologial		6 (16.66)	-	
Rx sacroiliitis				
0		6 (16.66)	10 (28.57)	
I		5 (13.88)	0	
II		6 (16.66)	3 (8.57)	
III		9 (25.00)	3 (8.57)	
IV		4 (11.11)	1 (2.86)	
No Data		6 (16.66)	18 (51.42)	
MRI sacroilitis				
Present		17(47.22)	5 (14.28)	
Absent		2 (5.55)	6 (17.14)	
No data		17 (47.22)	24 (68.57)	
Synthetic DMARD				
Yes		11 (30.55)	18 (51.42)	29 (40.85)
No		25 (69.44)	17 (48.57)	42 (59.15)
Previous biologic				
0		6 (16.66)	16 (45.71)	22 (30.98)
1		11 (30.55)	8 (22.85)	20 (28.16)
2		12 (33.33)	5 (14.28)	16 (22.54)
3		6 (16.66)	4 (11.42)	10 (14.08)
4		1 (2.77)	2 (5.71)	3 (4.22)
>4		0	0	0 (0)









P125. Fig. 1. A) global secukinumab's survival rate ROC curve. **B**) Secukinumab survival rate ROC curve represented in axial PsA 8blue), periferic PsA (green), mix PsA (red), AS (yellow) and ax-nr-AS (teal). **C**) Secukinumab monotherapy (blue) vs secukinumab combined therapy (any DMARDs) [red]. **D**) Seecukinumab retention rate adjuste by CRP box-and-whisker plot

P127

THE (COST-)EFFECTIVENESS OF LONGSTANDING EXERCISE THERAPY VERSUS USUAL CARE IN PATIENTS WITH AXIAL SPONDYLOARTHRITIS

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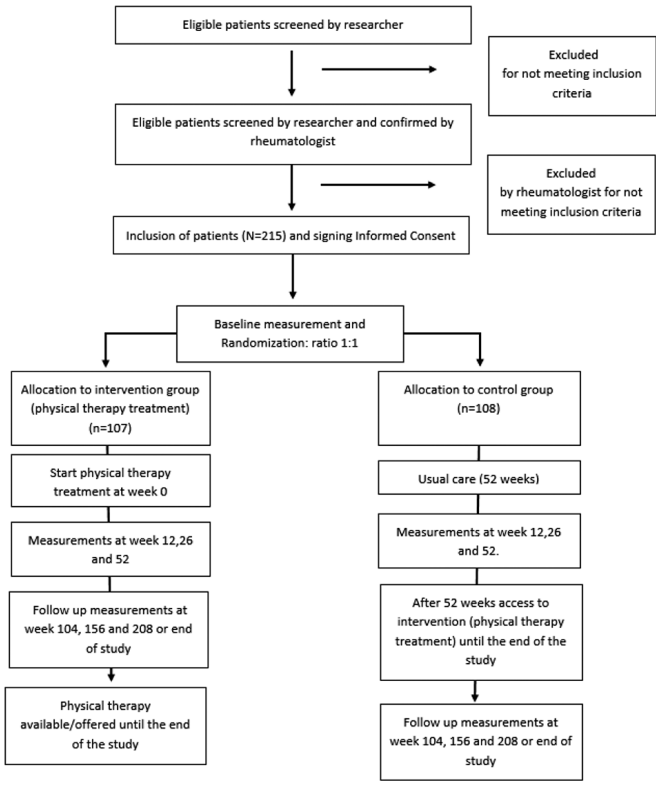
Introduction. Research on effectiveness and cost-effectiveness of longstanding exercise therapy in patients with axial SpondyloArthritis (axSpA) is scarce, and mainly concerned patients with a relatively favorable health status. A subgroup of patients with persistent active disease, irreversible spinal damage, multiple joint replacements, and/or severe co-morbidity are so far underrepresented in research.
Aim. To describe the study protocol of a (cost-)effectiveness study of longstanding exercise therapy compared to usual care in the subgroup of patients with axSpA and severe limitations in functioning.
Methods. In a randomized controlled trial the effectiveness and cost-effectiveness of longstanding, active exercise therapy (52 weeks) compared with usual care (1:1) will be evaluated (Fig. 1). The longstanding, active exercise therapy will focus on improving individual limitations in daily activities and participation and will be given by a trained physical therapist in the vicinity of the participant. In total, 215 patients with severe limitations in activities and participation will be included. Assessments will be performed at baseline, 12, 26, and 52 weeks. After 52 weeks, the patients in the usual care group are offered longstanding, active exercise therapy as well. Follow-up assessments are done at 104, 156 and 208 weeks.
Results. The primary outcome measure of effectiveness is the individual level of functioning (activities and participation), as measured with the Patient-Specific Complaints instrument at 52 weeks. For cost-effectiveness analyses, the EuroQol (EQ-5D-5L) and questionnaires on healthcare use and productivity will be administered.
The economic evaluation will be a cost-utility analysis from a societal perspective.
Conclusion. The results of this study will provide insights in the effectiveness and cost-effectiveness of longstanding exercise therapy in the subgroup of axSpA patients with severe functional limitations.



P127. Fig. 1. Study flowchart for long-term active exercise therapy in axial spondyloarthritis patients.

P128

EVALUATION OF THE NONSTEROIDAL ANTI-INFLAMMATORY DRUG-SPARING EFFECT OF SECUKINUMAB IN PATIENTS WITH ANKYLOSING SPONDYLITIS: MULTICENTER, RANDOMISED, DOUBLE-BLIND, PHASE IV ASTRUM-TRIAL

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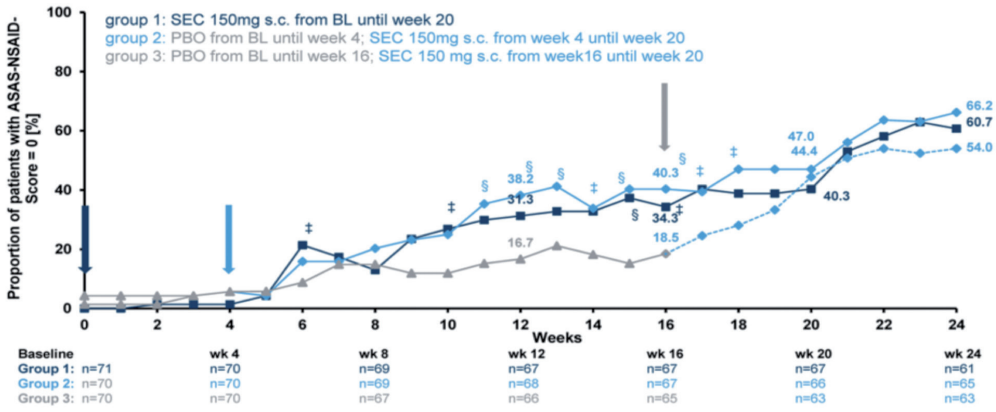
Aim. Lower doses and dose reduction of nonsteroidal anti-inflammatory drugs (NSAIDs) in patients (pts) with ankylosing spondylitis (AS) is desirable due to increased risk of associated side effects. Herein, we evaluate the short-term NSAID sparing effect of secukinumab (SEC) in AS pts.
Material and Methods. 211 pts with AS (BASDAI ≥4), inadequate response (IR) to ≥2 NSAIDs at the highest tolerated dose and pts with IR, or naïve/intolerant to ≤2 tumor necrosis factor inhibitors were enrolled. NSAID intake was evaluated using ASAS-NSAID score. Pts were randomised (1:1:1) to receive SEC 150mg s.c. from Week (Wk) 0 (group [gp] 1), Wk 4 (gp 2) and Wk 16 (gp 3). All groups received SEC 150mg from Wk 16. The primary endpoint (PE) was ASAS20 response of pooled gp 1 and gp 2 *vs*. gp 3 at Wk 12.
Results. Baseline (BL) characteristics were comparable across 3 groups (gp 1; N=71, gp 2; N=70, gp 3; N=70). The ASAS-NSAID (SD) scores at BL were: gp 1 *vs*. gp 2 *vs*. gp 3: 82.9(37.7) *vs*. 79.9(45.3) *vs*. 82.3(39.1). BASDAI and ASDAS-CRP scores were similar between groups: 6.0(1.4) *vs*. 6.2(1.5) *vs*. 6.2(1.3), and 3.4(0.7) *vs*. 3.3(0.8) *vs*. 3.4(0.7), respectively. The ASAS20 response at Wk 12 of pooled gp 1 and 2 *vs*. gp 3 was 51.1% *vs*. 44.3% but the PE was not met (p=0.35). Higher proportion of pts in gp 1 and 2 achieved ASAS40 and BASDAI50, and other secondary outcomes at Wk 16. More pts in gp 1 and 2 reduced their NSAID intake from BL through Wk 16 *vs*. gp 3 (Table I and Fig. 1).
Conclusion. SEC provided clinical improvements in conventional clinical outcomes and short-term NSAID sparing effect in AS patients.

P128. Table I. Effect of SEC 150 mg s.c. in AS pts (Intention-to-Treat-population) at Week 16.

(%), unless otherwise specified		Group 1 (N=71) (SEC 150 mg from BL until Wk 20)	Group 2 (N=70) (PBO from BL until Wk 4; SEC 150 mg from Wk 4)	Group 3 (N=70) (PBO from BL until Wk 16; SEC 150 mg from Wk 16)
ASAS20*		56.3	50.0	41.4
ASAS40*		43.7§	32.9	21.4
ASAS5/6*		39.4‡	32.9	21.4
ASAS-PR*		8.5	20.0‡	5.7
ASAS20	TNF-IR‡*	60.0‡‡	26.3	45.0
	TNF-naïve‡‡*	54.9	58.8‡	40.0
ASAS40	TNF-IR‡*	45.0	15.8	25.0
	TNF-naïve‡‡*	43.1‡	39.2‡	20.0
ASDAS-CRP change (mean±SD)**		-1.2±0.9§	-1.0±0.9‡	-0.7±0.8
BASDAI change (mean±SD)***		-2.3±1.9‡	-2.0±2.0	-1.7±2.0
BASDAI50*		32.4	28.6	22.9
ASAS-NSAID score change (mean±SD)*+		-51.5±46.2‡	-42.5±68.6	-33.7±38.8
ASAS-NSAID score	decrease ≥50%*	64.8‡	58.6	42.9
	<10*	52.1§	45.7‡	28.6
	=0*	32.4‡	38.6§	17.1

AS, ankylosing spondylitis; ASAS, Assessment of SpondyloArthritis International Society; ASDAS, AS Disease Activity score; BASDAI, Bath AS Disease Activity Index; BL, baseline; CRP, C-reactive protein; IR, inadequate responder; NSAID, non-steroidal anti-inflammatory drug; N, total number of subjects in each treatment group; PBO, placebo; PR, partial remission; pts, patients; SD, standard deviation; SEC, secukinumab; TNFi, tumor necrosis factor inhibitor; Wk, week.
‡p<0.001; §p<0.01 and †p<0.05 *vs.* gp 3; ‡‡p<0.05 *vs.* gp 2
*p-values are from a logistic regression model with treatment, TNFi status (IR / naïve) and CRP status (>/ ≤ central lab ULN) as factors. Missing values were imputed as non-response.
*p-values are from MMRM with treatment, TNFi status (IR / naïve), CRP status (>/ ≤ central lab ULN) and visit as factors, BL value as continuous covariate. Missing values were imputed as non-response.
Observed data (pts) for gp 1, 2, 3, respectively:
**67, 66, 62
***67, 66, 63
*+67, 67, 65
‡20, 19, 20
‡‡51, 51, 50



P128. Fig. 1. Proportion of patients reaching ASA-NSAID score=0 through Week 24,

ASAS, Assessment of SpondyloArthritis international Society; NSAID, non-steroidal-anti-inflammatory drug; N, total number of pts in each treatment group; n, number of observed pts; PBO, placebo; pts, patients; SEC, secukinumab; s.c., subcutaneous; Wk, week;

Data presented descriptively as observed through Wk 24;

As PE failed, statistical analysis is exploratory; p-values are from a logistic regression model with treatment, TNF inhibitor status (inadequate responder / naïve) and CRP status (> central lab ULN / ≤ lab ULN) as factors †p<0.001; §p<0.01 and ‡p<0.05 vs group 3; Arrows indicate first application of SEC in group 1, group 2 and group 3.

P129

LONG-TERM OUTCOMES WITH FILGOTINIB, AN ORAL PREFERENTIAL JANUS KINASE 1 INHIBITOR: 100-WEEK DATA FROM AN OPEN-LABEL EXTENSION (OLE) STUDY IN PATIENTS WITH PSA

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Introduction. EQUATOR (NCT03101670) was a randomized, 16-week, Phase 2, double-blind, placebo-controlled trial of filgotinib in patients with active PsA. Filgotinib was well tolerated and efficacious vs placebo for the primary ACR20 response endpoint. Patients completing EQUATOR could join an ongoing 304 week OLE (EQUATOR2; NCT03320876), with placebo-treated patients switching to filgotinib (200mg once daily).

Objectives. Primary (safety/tolerability); secondary (efficacy).

Methods. Patients were followed for efficacy until the last patient completed their Week 100 visit; safety data were collected up to 08-April-2020. Efficacy measures included MDA, MDA VLDA, PASDAS low and very low disease activity, ACR20/50/70, and PASI 75/90/100.

Results. 122/124 patients who completed EQUATOR enrolled in the OLE; 104 (85%) remained in the study at Week 100. Safety and tolerability were similar at Week 100 to a previous analysis at Week 52 (Fig. 1A). Efficacy was sustained at Week 100 (Fig. 1B and Fig. 2). 73.3% of patients originally randomized to filgotinib who were MDA responders at Week 16 had a response at Week 100. Sustained MDA responses were observed at ≥3 consecutive visits in 34.4% of patients.

Conclusions. Data from this 100-week OLE interim analysis found filgotinib to be well tolerated up to Week 100. Response rates with filgotinib were stable and comparable to those reported at Week 52.

Acknowledgements. Funding: Galapagos, Gilead Sciences.

A

	Rate per 100 PYE (number of events) at Week 52 (PYE=160)	Rate per 100 PYE (number of events) at Week 100 (PYE=262)
TEAE	213.9 (342)	191.8 (502)
Serious TEAE	5.6 (9)	5.3 (14)
Serious AE leading to death	0.6 (1)[a]	0.4 (1)[a]
Severe TEAE[b]	10.0 (16)	9.2 (24)
TEAE leading to permanent discontinuation of study drug[c]	3.1 (5)	2.7 (7)
TEAE of special interest		
All infections	62.5 (100)	52.7 (138)
All serious infections	1.9 (3)	1.5 (4)
Opportunistic infections	0	0
Herpes zoster	0.6 (1)	0.8 (2)
Active tuberculosis	0	0
Urinary tract infections	3.8 (6)	3.1 (8)
RTI	46.2 (74)	29.7 (78)
Upper RTIs	37.5 (60)	27.5 (72)
Pneumonia	0.6 (1)	0.4 (1)
Malignancies	0.6 (1)	0.4 (1)
Lymphoma	0	0
Non-melanoma skin cancer	0	0
Deep vein thrombosis	0	0
Pulmonary embolism	0	0
Major adverse cardiac events (adjudicated)	0.6 (1)	0.4 (1)
Death	0.6 (1)	0.4 (1)
Anemia	0	0
Neutropenia	1.3 (2)	0.8 (2)
Lymphopenia	0	0
Gastrointestinal perforation	0	0

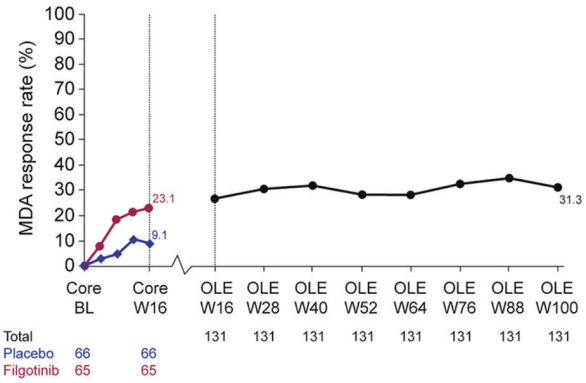
B

	n/N (%)
MDA[d]	41/131 (31.3)
MDA VLDA[e]	13/131 (9.9)
PASDAS LDA[f]	57/131 (43.5)
PASDAS VLDA[g]	23/131 (17.6)
ACR20	79/131 (60.3)
ACR50	57/131 (43.5)
ACR70	38/131 (29.0)
PASI 75[h]	32/82 (39.0)
PASI 90[h]	20/82 (24.4)
PASI 100[h]	11/82 (13.4)

[a]Bilateral pneumonia, leading to toxic shock with multi-organ failure
[b]Defined as Grade ≥3
[c]Excludes deaths
[d]Defined as meeting 5 out of 7 of the MDA criteria
[e]Defined as meeting 7 out of 7 of the MDA criteria
[f]Defined as a PASDAS score of ≤3.2
[g]Defined as a PASDAS score of ≤1.9
[h]PASI was only measured in patients with ≥3% of their body surface area affected by psoriasis

ACR, American College Rheumatology; AE, adverse event; LDA, low disease activity; MDA, minimal disease activity; NRI, non-responder imputation; OLE, open-label extension; PASDAS, Psoriatic Arthritis Disease Activity Score; PASI, Psoriasis Area and Severity Index; PYE, patient-years of exposure; QD, once daily; RTI, respiratory tract infection; TEAE, treatment-emergent adverse event; VLDA, very low disease activity

P129. Fig. 1. A) Overview of safety with filgolinib 200 mg QD at Week 52 and Week 100. **B**) REsponders (NRI) at Week 100 of the EQUATOR2 OLE.



BL, baseline; MDA, minimal disease activity; NRI, non-responder imputation; OLE, open-label extension; W, Week

P129. Fig. 2. MDA response rate over time (NRI).

Methods. MRI scans at baseline and W12 (or early discontinuation) were re-evaluated, blinded-to-timepoint, by 2 experts for SPARCC SIJ Structural Scores (SSS); erosion, backfill, ankylosis, and fat lesion scores. Data were compared with clinical outcomes, using Pearson correlations of intra-subject relationships from baseline to W12.

Results. At baseline, there were no notable differences in MRI structural lesions between filgotinib and placebo (Fig. 1). From baseline to W12, erosion scores decreased with filgotinib and increased with placebo; backfill scores increased with filgotinib but not placebo (Fig. 1). Change in erosion scores were positively correlated with changes in SPARCC MRI SIJ inflammation scores at W12 (filgotinib: r=0.35921, p=0.0132; placebo: r=0.56043, p=0.0002), indicating that changes in inflammation and structural scores correlated intra-individually. A negative correlation was observed for backfill (r=–0.41479, p=0.0037; placebo: r=–0.37483, p=0.0187). All observed correlations were moderate. Overall, significant correlations with erosion and backfill scores were not observed for clinical endpoints, and no clinical endpoint correlated with ankylosis or fat lesion scores (Fig. 2).

Conclusions. In TORTUGA, filgotinib was associated with a decrease in SIJ erosion and an increase in backfill as compared to placebo at W12, correlating with the change in SIJ inflammation as assessed by MRI.

Acknowledgements. Funding: Galapagos, Gilead Sciences.

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IMPACT OF FILGOTINIB ON STRUCTURAL LESIONS IN THE SACROILIAC JOINTS AT 12 WEEKS IN PATIENTS WITH ACTIVE ANKYLOSING SPONDYLITIS: CORRELATION WITH CLINICAL ENDPOINTS

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Introduction. In the Phase 2 randomized TORTUGA trial (NCT03117270, n=116), the oral, preferential Janus kinase 1 inhibitor filgotinib reduced inflammation in patients with active ankylosing spondylitis (AS), as measured by Spondyloarthritis Research Consortium of Canada (SPARCC) MRI scores. This post-hoc analysis compared the effects of filgotinib 200mg daily for 12 weeks (12W) on MRI measures of structural change in the sacroiliac joint (SIJ) with effects on clinical parameters.

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EFFECTS OF FILGOTINIB ON SPINAL LESIONS IN PATIENTS WITH ANKYLOSING SPONDYLITIS: MAGNETIC RESONANCE IMAGING DATA FROM THE PLACEBO-CONTROLLED, DOUBLE-BLIND, RANDOMIZED TORTUGA TRIAL

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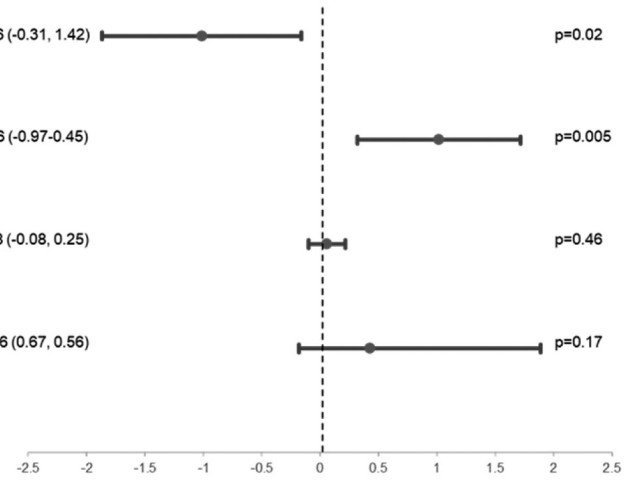
Introduction. In the Phase 2 randomized TORTUGA trial (NCT03117270, n=116), the oral, preferential Janus kinase 1 inhibitor filgotinib improved Spondyloarthritis Research Consortium of Canada (SPARCC) MRI inflammation scores in the spine and sacroiliac joints of patients with ankylosing spondylitis (AS) versus placebo; this post-hoc analysis compares the effects of filgotinib 200mg QD for 12 weeks on CANDEN MRI measures of spinal inflammation and structural lesions.

Score*	Mean baseline scores (SD), filgotinib – placebo (n= 48) – (n=39)	LSM change from baseline (95% CI) at week 12**	LSM group difference at Week 12 (95% CI)	P value*** for LSM group difference
Erosion	3.38 (5.34) - 2.62 (3.76)	- 0.46 (-1.31,0.40) vs 0.56 (-0.31, 1.42)		p=0.02
Backfill	1.02 (1.99) - 1.35 (2.59)	0.76 (0.07, 1.45) vs. -0.26 (-0.97-0.45)		p=0.005
Ankylosis	9.58 (8.15) - 9.83 (8.45)	0.14 (-0.02, 0.30) vs. 0.08 (-0.08, 0.25)		p=0.46
Fat lesions	4.19 (6.06) - 4.35 (5.44)	0.37 (-0.23, 0.97) vs. -0.06 (0.67, 0.56)		p=0.17



*Observed changes from baseline in the SPARCC SSS measures were evaluated using analysis of covariance with factors for treatment, baseline value, and randomization stratification.
**Least-squares mean changes from baseline and between-group differences with 95% confidence intervals were calculated.
*** p values were nominal.
CI, confidence interval; LSM, least squares mean; MRI, magnetic resonance imaging; SD, standard deviation; SIJ, sacroiliac joint; SPARCC, Spondyloarthritis Research Consortium of Canada; SSS, SIJ structural scores

P130. Fig. 1. SPARCC SIJ SSS base on evaluable MRI scans (baseline and Week 12) from 87 patients.

	Treatment	Erosion		Backfill		Ankylosis		Fat lesions	
		r	p value	r	p value	r	p value	r	p value
CRP	Filgotinib (n=47)	0.03271	0.8272	–0.10905	0.4656	0.04849	0.7462	–0.03012	0.8407
	Placebo (n=39)	–0.13964	0.3965	–0.04245	0.7975	–0.01842	0.9114	–0.17774	0.2790
ASDAS	Filgotinib (n=47)	0.04626	0.7575	–0.14865	0.3187	0.08502	0.5699	0.00796	0.9577
	Placebo (n=39)	–0.09851	0.5508	0.24511	0.1326	0.31840	0.0482	0.09311	0.5729
BASDAI	Filgotinib (n=47)	0.13275	0.3737	–0.16219	0.2760	0.03497	0.8155	–0.06120	0.6828
	Placebo (n=39)	–0.03679	0.8240	0.34156	0.0333	0.29057	0.0727	0.21383	0.1912
BASFI	Filgotinib (n=47)	0.01148	0.9389	–0.05060	0.7355	–0.03208	0.8305	–0.10663	0.4756
	Placebo (n=39)	0.15751	0.3383	0.13100	0.4267	0.35698	0.0257	0.00908	0.9563
SPARCC MRI inflammation SIJ	Filgotinib (n=47)	0.35921	0.0132	–0.41479	0.0037	0.01711	0.9091	–0.16252	0.2751
	Placebo (n=39)	0.56043	0.0002	–0.37483	0.0187	–0.05163	0.7549	–0.04282	0.7958
SPARCC MRI inflammation spine	Filgotinib (n=47)	0.20778	0.1611	–0.26756	0.0690	–0.01311	0.9303	0.11490	0.4418
	Placebo (n=39)	–0.06349	0.7010	–0.06885	0.6770	–0.06645	0.6878	–0.02965	0.8578

ASDAS, Ankylosing Spondylitis Disease Activity Score; BASFI, Bath Ankylosing Spondylitis Functional Index; CRP, C-reactive protein; MRI, magnetic resonance imaging; r, Pearson correlation; SIJ, sacroiliac joint; SPARCC, Spondyloarthritis Research Consortium of Canada

P130. Fig. 2. Pearson correlations between change from baseline to Week 12 in clinicaland MRI inflammation endpoints and MRI structural lesions.

Methods. Total spine MRIs were performed at baseline and Week 12; scans were re-evaluated post hoc by two blinded independent experts and an adjudicator according to the detailed anatomy-based CANDEN method. Change from baseline was assessed via ANCOVA (factors: treatment, baseline value, randomization stratification [prior tumor necrosis factor inhibitor use]).

Results. MRI scans from 88 patients (filgotinib, n=47; placebo, n=41) with evaluable results at baseline and Week 12 (or early termination) were re-evaluated (Fig. 1). Filgotinib significantly reduced total spine inflammation scores from baseline to Week 12 versus placebo (LS mean: FIL, –4.40; placebo, 0.09; group difference: –4.49; p=0.0003). Cumulative probability plots favored filgotinib over placebo for change from baseline in subregion inflammation scores, including postero-lateral elements, and facet joint (Fig. 2). Total spine fat lesion LS mean scores numerically increased in the filgotinib group (1.09) but decreased in the placebo group (–0.09; group difference: 1.18; *p*=0.0878). There were no statistically significant differences between groups for changes in erosion (group difference: 0.05; *p*=0.1956) or ankylosis scores (group difference: 0.10; *p*=0.2203).

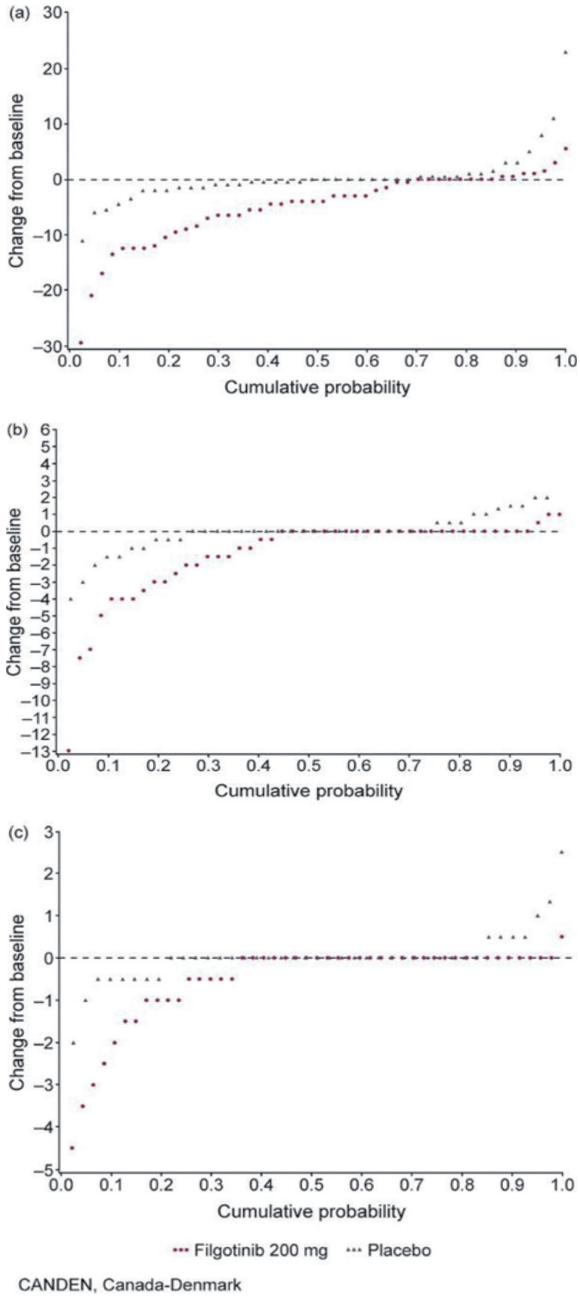
Conclusion. In the TORTUGA trial, filgotinib decreased inflammation (including spinal postero-lateral elements and facet joints) versus placebo; changes in erosion or ankylosis were neither expected nor observed during the 12-week study period.

Acknowledgements. Funding: Galapagos, Gilead Sciences.

Characteristic	Filgotinib (n=47)	Placebo (n=41)	All (N=88)
Age, years	40.4 (11.40)	42.0 (9.09)	41.1 (10.36)
Male sex, % of patients	76.6	73.2	75.0
Time since diagnosis, years	5.3 (5.38)	7.8 (8.44)	6.5 (7.04)
HLA-B27 positivity, % of patients	95.3	92.1	93.8
ASDAS	4.3 (0.53)	4.2 (0.71)	4.2 (0.62)
MRI SPARCC spine	20.6 (20.54)	15.6 (21.33)	18.2 (20.94)
MRI SPARCC SIJ	7.9 (11.58)	4.9 (6.28)	6.5 (9.56)
MASES	4.9 (2.74)	4.4 (3.01)	4.7 (2.86)
CANDEN ankylosis score,[a] % of patients			
0–100	95.7	85.4	90.9
>100–200	2.1	12.2	6.8
>200	2.1	2.4	2.3
Total CANDEN spine inflammation score[b]	18.0 (21.35)	11.8 (17.05)	15.1 (19.61)
Total CANDEN spine fat score	15.4 (27.63)	11.9 (16.33)	13.8 (23.01)
Total CANDEN spine bone erosion score	0.5 (1.13)	0.3 (0.57)	0.4 (0.91)
Total CANDEN ankylosis score	15.4 (42.11)	31.1 (54.99)	22.7 (48.89)
Previous TNF inhibitor therapy, % of patients	8.5	12.2	10.2

[a]Range, 0 to 460; [b]Range, 0 to 614.
Data are mean (SD) unless otherwise indicated.
ASDAS, Ankylosing Spondylitis Disease Activity Score; CANDEN, Canada-Denmark; HLA, human leukocyte antigen; MASES, Maastricht Ankylosing Spondylitis Enthesitis Score; MRI, magnetic resonance imaging; SD, standard deviation; SIJ, sacroiliac joint; SPARCC, Spondyloarthritis Research Consortium of Canada; TNF, tumor necrosis factor.

P131. Fig. 1. Demographics and baseline characteristics for patients with an MRI scan.



P131. Fig. 2. Change from baseline in (**a**) total CANDEN spine inflammation score, and (**b**) posterior elements inflammation subregion score, and (**c**) facet joint inflammation subregion score.

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TARGETED SERUM PROTEOMIC ANALYSIS FOLLOWING UPADACITINIB TREATMENT IN ANKYLOSING SPONDYLITIS SHOWS ROBUST SUPPRESSION OF INNATE AND ADAPTIVE IMMUNE PATHWAYS WITH TISSUE REPAIR MODULATION

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Introduction/Aims. Upadacitinib (UPA), an oral JAK inhibitor selective for JAK1, demonstrated efficacy in patients with active ankylosing spondylitis (AS) despite NSAID therapy. We identify pathways modulated by UPA in AS patients.
Methods. The plasma samples from the SELECT-AXIS1 patients (PBO, n=65; UPA 15 mg QD, n=63) were selected for analysis on the Olink® Inflammation panel.
Results. Treatment with UPA 15 mg QD reduced the levels of BioMs associated with IFN, IL6, T Cells, M1 or "inflammatory" Macrophages, and Dendritic Cells (DC); and increased those of BioMs associated with tissue repair and hematopoiesis (Table I). In-silico pathway prediction indicated that these changes in biomarkers lead to the inhibition of key functional pathways such as leukocyte activation and mobility, inflammatory response, and damage to connective tissue. Improvement in ASDAS-CRP, BASDAI, and MRI spine SPARCC correlated with increase in BioMs associated with tissue repair and hematopoiesis, while improvement in ASDAS-CRP and CRP correlated with decrease in CCL23, CSF1, IL-6, and MMP1; and reduction in only CRP correlated with decrease in IFN- and of TNF-α-related BioMs (Table II).
Conclusions. Treatment of NSAID-IR AS patients with UPA 15 mg QD resulted in the coordinated decrease in multiple BioMs associated with the innate and adaptive immune responses, and in the increase in BioMs generally associated with tissue repair and hematopoiesis. Based on pathway analysis and on the correlation of change in BioMs with change in clinical measures, we hypothesize that both increase in BioMs associated with tissue repair and hematopoiesis, and decrease in BioMs associated with inflammation may contribute to the clinical activity of UPA in AS patients.

P.132. Table I. BioMs significantly modulated from baseline by UPA.

BIOMARKER	UNIPROT ID	GROUP	PBO WK4		PBO WK14		UPA 15 MG QD WK4		UPA 15 MG QD WK14	
			LSMEAN Log_2 FC	p Val	LSMEAN Log_2 FC	p Val	LSMEAN Log_2 FC	p Val	LSMEAN Log_2 FC	p Val
CXCL10	P02778	IFN / IL6	0.227	*	0.058	NS	-0.659	****	-0.407	***
CXCL11	O14625		0.044	NS	0.061	NS	-0.589	****	-0.362	**
CXCL9	Q07325		0.176	NS	-0.023	NS	-0.673	****	-0.478	***
IL6	P05231		0.028	NS	-0.016	NS	-0.683	****	-0.689	****
CCL19	Q99731	M1 MAC	0.073	NS	-0.005	NS	-0.638	****	-0.696	****
CSF-1	P09603		0.022	NS	-0.002	NS	-0.260	****	-0.208	****
IL-18	Q14116		-0.032	NS	-0.003	NS	-0.233	****	-0.092	*
MMP-1	P03956		-0.020	NS	-0.060	NS	-0.467	****	-0.294	**
TNF	P01375		0.049	NS	0.023	NS	-0.253	****	-0.147	**
TNFRSF9	Q07011		0.034	NS	0.001	NS	-0.317	****	-0.308	****
TNFSF14	O43557		-0.136	NS	-0.069	NS	-0.351	***	-0.213	*
CD8A	P01732	T CELL	-0.035	NS	-0.008	NS	-0.192	****	-0.235	****
IL-15RA	Q13261		-0.004	NS	-0.003	NS	-0.109	****	-0.074	**
IL-18R1	Q13478		-0.020	NS	-0.006	NS	-0.146	****	-0.078	*
SLAMF1	Q13291		0.051	NS	0.044	NS	-0.144	****	-0.197	****
TNFB	P01374		0.057	NS	0.019	NS	-0.187	****	-0.209	****
TRANCE	O14788		0.003	NS	0.023	NS	-0.181	**	-0.317	****
CCL23	P55773	DC	-0.020	NS	-0.059	NS	-0.230	****	-0.244	****
IL-12B	P29460		-0.005	NS	0.053	NS	-0.423	****	-0.339	****
MCP-4	Q99616		-0.158	NS	0.009	NS	-0.338	***	-0.231	*
CCL25	O15444	M2 MAC	0.071	NS	0.043	NS	0.114	**	0.202	****
CCL11	P51671	REPAIR / HEMAT	-0.042	NS	0.009	NS	0.152	***	0.259	****
CX3CL1	P78423		0.028	NS	0.024	NS	0.208	****	0.279	****
DNER	Q8NFT8		-0.014	NS	-0.013	NS	0.130	****	0.201	****
FGF-5	P12034		0.004	NS	0.018	NS	0.072	***	0.076	***
Flt3L	P49771		0.024	NS	0.059	NS	0.209	****	0.333	****
LIF-R	P42702		-0.014	NS	-0.012	NS	0.093	***	0.114	****
SCF	P21583		-0.038	NS	-0.040	NS	0.167	****	0.247	****
TWEAK	O43508		-0.090	*	-0.017	NS	0.125	**	0.157	***

Contrast to Baseline Significance: * p < 0.05 | ** p < 0.01 | *** p < 0.001 | **** p < 0.0001

P.132. Table II. Correlation of UPA induced change in BM with change in clinical measures.

Biomarker	Change in ASADASCRP WEEK 14		Change in LOG_{10} hsCRP WEEK 14		Change in BASDAI WEEK 14		Change in MRI spine SPARCC WEEK 14	
	Pearson r	p Val	Pearson r	p Val	Pearson r	p Val	Spearman ρ	p Val
CCL11	-0.404	**	-0.234	NS	-0.402	**	-0.339	***
CX3CL1	-0.432	**	-0.251	NS	-0.422	**	-0.499	****
DNER	-0.463	***	-0.162	NS	-0.395	**	-0.310	***
FGF-5	-0.289	*	-0.043	NS	-0.381	**	-0.072	NS
Flt3L	-0.290	*	-0.045	NS	-0.351	**	-0.448	****
LIF-R	-0.377	**	-0.245	NS	-0.365	**	-0.211	*
SCF /KITLG	-0.418	**	-0.254	NS	-0.336	*	-0.446	****
TWEAK	-0.271	NS	-0.154	NS	-0.329	*	-0.249	**
CCL25	-0.140	NS	-0.068	NS	-0.256	NS	-0.207	*
IL-15RA	-0.055	NS	0.135	NS	-0.163	NS	-0.126	NS
IL18	-0.046	NS	0.076	NS	-0.132	NS	-0.039	NS
MCP-4/CCL13	-0.038	NS	-0.006	NS	-0.081	NS	0.000	NS
SLAMF1	-0.108	NS	0.139	NS	-0.170	NS	0.077	NS
TRANCE	0.055	NS	-0.133	NS	0.035	NS	-0.047	NS
CCL19	0.123	NS	0.382	**	0.029	NS	0.156	NS
CD8A	0.035	NS	0.288	*	-0.131	NS	0.110	NS
CXCL9	0.237	NS	0.341	*	0.071	NS	-0.064	NS
CXCL10	0.104	NS	0.374	**	-0.070	NS	-0.078	NS
CXCL11	0.244	NS	0.281	*	0.098	NS	0.113	NS
IL-12B	0.038	NS	0.312	*	-0.127	NS	0.033	NS
IL-18R1	0.151	NS	0.277	*	0.012	NS	0.136	NS
TNFA	0.121	NS	0.293	*	-0.090	NS	-0.031	NS
TNFRSF9	0.017	NS	0.318	*	-0.159	NS	-0.015	NS
TNFSF14	0.195	NS	0.320	*	0.016	NS	-0.030	NS
CCL23	0.324	*	0.410	**	0.114	NS	0.049	NS
CSF-1	0.130	NS	0.519	****	-0.162	NS	0.206	*
IL6	0.537	****	0.632	****	0.241	NS	0.220	*
MMP-1	0.342	*	0.209	NS	0.176	NS	0.151	NS

Correlation Significance: * p < 0.05 | ** p < 0.01 | *** p < 0.001 | **** p < 0.0001

P133

BIMEKIZUMAB LONG-TERM SAFETY IN PATIENTS WITH ANKYLOSING SPONDYLITIS AND PSORIATIC ARTHRITIS: 3-YEAR RESULTS FROM BE AGILE AND BE ACTIVE

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Introduction. Bimekizumab is a monoclonal IgG1 antibody that selectively inhibits both interleukin (IL)-17A and IL-17F and has demonstrated clinical efficacy and an acceptable safety profile in patients with ankylosing spondylitis (AS)[1] and patients with psoriatic arthritis (PsA).[2] We report safety from phase 2b dose-ranging studies in AS and PsA, and their open-label extensions (OLEs), after up to 3 years of bimekizumab exposure.
Methods. Safety is reported for Weeks 0–48 of BE AGILE (AS; NCT02963506) and BE ACTIVE (PsA; NCT02969525), and Weeks 48–156 (AS; NCT03355573) or 48–152 (PsA; NCT03347110) for the OLEs. Patients in the safety sets received ≥1 dose of bimekizumab within the relevant study period. Exposure-adjusted incidence rates (EAIRs) per 100 patient-years (PY) are presented for treatment-emergent adverse events (TEAEs).
Results. 303 (OLE: 255) patients with AS and 204 (OLE: 183) with PsA received ≥1 dose of bimekizumab. Baseline characteristics are shown in Table I. EAIRs of TEAEs (serious TEAEs) were: BE AGILE: 186.2 (5.1), OLE: 110.8 (5.9); BE ACTIVE: 166.8 (4.6), OLE: 94.3 (3.8) (Table I). EAIRs of serious infections: BE AGILE: 1.5, OLE: 1.1; BE ACTIVE: 1.7, OLE: 0.3. There was one death in BE AGILE (cardiac arrest) and one in the OLE (traffic accident), neither related to study drug. There were no deaths in BE ACTIVE. Nasopharyngitis and upper respiratory tract infections were the most frequently reported TEAEs (Table II). All *Candida* infections were localised and mild to moderate; most were oral candidiasis. No cases of active tuberculosis were reported. Two cases of adjudicated major adverse cardiovascular events (BE AGILE) and two malignancies (BE AGILE OLE, BE ACTIVE) were reported. Inflammatory bowel disease and anterior uveitis TEAEs were infrequent; all but one of the cases of IBD were reported in AS.
Conclusion. In these phase 2 studies, bimekizumab has an acceptable long-term safety profile across both AS and PsA populations.

Acknowledgements. This study was funded by UCB Pharma. Editorial services were provided by Costello Medical and funded by UCB Pharma.

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Disclosures

1. **DP:** Research support from AbbVie, Eli Lilly, MSD, Novartis and Pfizer; consulting fees from AbbVie, Biocad, Eli Lilly, Gilead, GSK, MSD, Novartis, Pfizer, Samsung Bioepis and UCB Pharma; speaker fees from AbbVie, BMS, Eli Lilly, MSD, Novartis, Pfizer and UCB Pharma.
2. **PM:** Research grants from AbbVie, Amgen, BMS, Eli Lilly, Gilead, Janssen, Novartis, Pfizer, Sun Pharma and UCB Pharma; consultancy fees from AbbVie, Amgen, Boehringer Ingelheim, BMS, Celgene, Eli Lilly, Galapagos, Gilead, GSK, Janssen, Novartis, Pfizer, Sun Pharma and UCB Pharma; speakers' bureau from AbbVie, Amgen, Eli Lilly, Janssen, Novartis, Pfizer and UCB Pharma.
3. **RBW:** Has received research grants to his institution from AbbVie, Almirall, Janssen, LEO Pharma, Novartis and UCB Pharma; consulting fees from AbbVie, Almirall, Amgen, Arena, Astellas, Avillion, BMS, Boehringer Ingelheim, Celgene, Eli Lilly, GSK, Janssen, LEO Pharma, Novartis, Pfizer, Sanofi and UCB Pharma.
4. **LG:** Grant/research support from Pfizer and UCB Pharma; consultant for AbbVie, Eli Lilly, Gilead, GSK, Janssen, Novartis, Pfizer and UCB Pharma.
5. **CF, MO, TV, JC, DA, RB:** Employees of UCB Pharma.
6. **BI:** Employee of UCB Pharma; shareholder in GSK and UCB Pharma.
7. **AD:** Grant/research support from AbbVie, Eli Lilly, GSK, Novartis, Pfizer and UCB Pharma; speakers' bureau from Janssen, Novartis and Pfizer; consultant for AbbVie, Amgen, BMS, Boehringer Ingelheim, Celgene, Eli Lilly, Gilead, GSK, Janssen, Novartis, Pfizer and UCB Pharma.

P133. Table I. Baseline characteristics (FAS) and overview of TEAEs (SS)

	Ankylosing spondylitis BE AGILE (n=303)	Psoriatic arthritis BE ACTIVE (n=206)[a]
Baseline characteristics		
Age (years)		
Mean (SD)	42.2 (11.8)	49.3 (12.4)
Median (range)	41.0 (21.0–75.0)	49.0 (23.0–78.0)
Male, n (%)	256 (84.5)	105 (51.0)
HLA-B27 positive, n (%)	270 (89.1)	NR
BMI (kg/m^2), mean (SD)	26.9 (5.0)	29.6 (6.0)
Tobacco use, n (%)		
Never	132 (43.6)	130 (63.1)
Current	103 (34.0)	40 (19.4)
Former	38 (12.5)	35 (17.0)
Disease duration since diagnosis (years), mean (SD)	7.9 (8.5)	7.1 (8.2)
Duration of symptoms (years), mean (SD)	14.6 (9.7)	NR
hs-CRP, mg/L, mean (SD)	19.0 (20.9)[b]	11.8 (6.8)
TJC, mean (SD)	NR	21.7 (15.0)
SJC, mean (SD)	NR	11.5 (8.4)
Prior history, n (%)[c]		
Anterior uveitis[d]	46 (15.2)	1 (0.5)
Ulcerative colitis	5 (1.7)	1 (0.5)
Crohn's disease	2 (0.7)	0
Psoriasis	9 (3.0)	204 (99.0)[e]
Psoriasis BSA ≥3%, n (%)	NR	137 (66.5)
Dactylitis at BL, n (%)	NR	64 (31.1)
Enthesitis at BL (current), n (%)[f]	200 (66.0)	107 (51.9)
Prior TNFi therapy, n (%)	34 (11.2)	39 (18.9)
Concomitant therapies, n (%)		
NSAIDs[g]	272 (89.8)	133 (64.6)
MTX	27 (8.9)	131 (63.6)
SSZ	56 (18.5)	1 (0.5)
Systemic corticosteroids	26 (8.6)	37 (18.0)

	Ankylosing spondylitis BE AGILE		Psoriatic arthritis BE ACTIVE	
TEAEs, n (%) [EAIR/100PY]	Wks 0–48 n=303	Wks 48–156 n=255	Wks 0–48 n=204	Wks 48–152 n=183
Total time at risk, PY	261.3	554.7	177.2	392.7
Any TEAEs	235 (77.6) [186.2]	215 (84.3) [110.8]	151 (74.0) [166.8]	148 (80.9) [94.3]
Serious TEAEs[h]	13 (4.3) [5.1]	31 (12.2) [5.9]	8 (3.9) [4.6]	14 (7.7) [3.8]
Severe TEAEs[i]	7 (2.3)	19 (7.5)	7 (3.4)	8 (4.4)
Discontinuations due to TEAEs	20 (6.6)	14 (5.5)	8 (3.9)	9 (4.9)
Drug-related TEAEs	110 (36.3)	90 (35.3)	72 (35.3)	61 (33.3)
Deaths[j]	1 (0.3)	1 (0.4)	0	0

[a]n=204 for SS due to withdrawal of 2 patients in the original placebo group of the BE ACTIVE dose-blind period prior to receiving bimekizumab; [b]n=300 for hs-CRP in BE AGILE; [c]Safety set; [d]Includes iritis, iridocyclitis; [e]In BE ACTIVE, prior history of psoriasis was missing for 2 patients; [f]Maastricht Ankylosing Spondylitis Enthesitis Index >0; [g]Includes patients taking ≥1 concomitant NSAID therapy; [h]Serious TEAEs met at least one of the following criteria: death; life-threatening; significant or persistent disability/incapacity; congenital anomaly/birth defect; initial inpatient hospitalisation or prolongation of hospitalisation; important medical event that, based upon appropriate medical judgment, may jeopardise the patient and may require medical or surgical intervention to prevent one of the other outcomes listed in the definition of serious; [i]Severe TEAEs were defined as TEAEs where the patient was unable to work normally or to carry out his/her usual activities, or where the TEAE was of definite clinical consequence; [j]There was 1 death in BE AGILE (cardiac arrest) and 1 in the OLE (traffic accident), neither of which were considered treatment-related. BL: baseline; BMI: body mass index; BSA: body surface area; CRP: C-reactive protein; csDMARDs: conventional synthetic disease-modifying anti-rheumatic drugs; EAIR: exposure-adjusted incidence rate; FAS: full analysis set; HLA-B27: human leukocyte antigen B27; IBD: inflammatory bowel disease; MTX: methotrexate; NR: not reported; NSAID: non-steroidal anti-inflammatory drug; SJC: swollen joint count; SD: standard deviation; SS: safety set; SSZ: sulfasalazine; TEAE: treatment emergent adverse event; TJC: tender joint count; TNFi: tumour necrosis factor inhibitor; wks: weeks; PY: patient-years.

P133. Table II. Most frequently reported TEAEs and TEAEs of special monitoring (SS).

n (%) [EAIR/100 PY]	Ankylosing spondylitis BE AGILE		Psoriatic arthritis BE ACTIVE	
	Wks 0–48 n=303	Wks 48–156 n=255	Wks 0–48 n=204[a]	Wks 48–152[b] n=183
Most frequently reported TEAEs (≥7%) by preferred term				
Nasopharyngitis	34 (11.2) [13.7]	34 (13.3) [6.7]	25 (12.3) [15.0]	19 (10.4) [5.2]
Upper respiratory tract infection	17 (5.6) [6.7]	24 (9.4) [4.6]	21 (10.3) [12.4]	20 (10.9) [5.5]
Oral candidiasis	16 (5.3) [6.3]	13 (5.1) [2.4]	10 (4.9) [5.8]	13 (7.1) [3.5]
Psoriasis	0	8 (3.1) [1.5]	4 (2.0) [2.3]	14 (7.7) [3.7]
TEAEs of special monitoring				
Serious infections	4 (1.3) [1.5]	6 (2.4) [1.1]	3 (1.5) [1.7]	1 (0.5) [0.3]
Candida infections[c]	19 (6.3) [7.5]	15 (5.9) [2.8]	14 (6.9) [8.3]	16 (8.7) [4.3]
Oral candidiasis[d]	16 (5.3) [6.3]	13 (5.1) [2.4]	10 (4.9) [5.8]	13 (7.1) [3.5]
Opportunistic infections[e]	1 (0.3) [0.4]	1 (0.4) [0.2]	2 (1.0) [1.1]	1 (0.5) [0.3]
Active tuberculosis	0	0	0	0
Liver enzyme elevation[f]				
ALT increased	13 (4.3) [5.1]	15 (5.9) [2.8]	9 (4.4) [5.2]	6 (3.3) [1.6]
AST increased	9 (3.0) [3.5]	9 (3.5) [1.6]	6 (2.9) [3.5]	6 (3.3) [1.6]
Hepatic enzyme increased	6 (2.0) [2.3]	7 (2.7) [1.3]	3 (1.5) [1.7]	1 (0.5) [0.3]
Adjudicated MACE	2 (0.7) [0.8]	0	0	0
Malignancies	0	1 (0.4) [0.2][g]	1 (0.5) [0.6][h]	0
Adjudicated IBD	4 (1.3) [1.5][i]	6 (2.4) [1.1]	0	1 (0.5) [0.3]
Ulcerative colitis	2 (0.7) [0.8]	3 (1.2) [0.5]	0	0
Crohn's disease	2 (0.7) [0.8]	2 (0.8) [0.4]	0	0
Microscopic colitis	0	0	0	1 (0.5) [0.3]
IBD, not otherwise specified	0	1 (0.4) [0.2]	0	0
Anterior uveitis[j]	2 (0.7) [0.8]	4 (1.6) [0.7]	0	0
With prior history	2 (0.7)	1 (0.4)	0	0
No prior history	0	3 (1.2)	0	0
Neutropenia	1 (0.3) [0.4]	1 (0.4) [0.2]	1 (0.5) [0.6]	5 (2.7) [1.3]
Injection site reactions	3 (1.0) [1.2]	1 (0.4) [0.2]	3 (1.5) [1.7]	0
Suicidal ideation and behaviour	0	1 (0.4) [0.2]	1 (0.5) [0.6]	0
Depression	1 (0.3) [0.4]	1 (0.4) [0.2]	2 (1.0) [1.1]	2 (1.1) [0.5]

In the OLEs (after Wk 48), all patients received 160 mg bimekizumab every 4 wks.[1,2] [a]n=204 for Wks 0–48 data due to withdrawal of 2 patients in the original placebo group of the BE ACTIVE dose-blind period prior to receiving bimekizumab; [b]Data include safety follow-up to a possible total 168 weeks for some patients; [c]All *Candida* infections were localised, not systemic; [d]All oral candidiasis TEAEs were mild to moderate (no serious cases); [e]In BE AGILE, 1 case of recurrent herpes zoster in Wks 0–48 and 1 case of oropharyngeal candidiasis in Wks 48–156; in BE ACTIVE, 2 patients reported 3 opportunistic events (2 fungal oesophagitis, 1 oropharyngeal candidiasis) in Wks 0–48, and 1 patient reported 2 events (fungal pharyngitis, fungal oesophagitis) in Wks 48–152; [f]No cases of Hy's law were reported; [g]1 case of testicular seminoma; [h]1 case of malignant melanoma *in situ*; [i]1 of 4 occurred in double-blind period (16 mg bimekizumab) and the remaining 3 of 4 in dose-blind period; [j]Anterior uveitis was not a TEAE of special monitoring in this study and is included as additional information. ALT: alanine aminotransferase; AST: aspartate aminotransferase; EAIR: exposure-adjusted incidence rate; IBD: inflammatory bowel disease; MACE: major adverse cardiovascular events; NR: not reported; OLE: open-label extension; PY: patient-years; SS: safety set; TEAE: treatment-emergent adverse event; wks: weeks.

P134

EFFECTS OF IXEKIZUMAB TREATMENT ON STRUCTURAL CHANGES IN THE SACROILIAC JOINTS BASED ON MRI ASSESSMENTS AT 16 WEEKS IN PATIENTS WITH NON-RADIOGRAPHIC AXIAL SPONDYLOARTHRITIS

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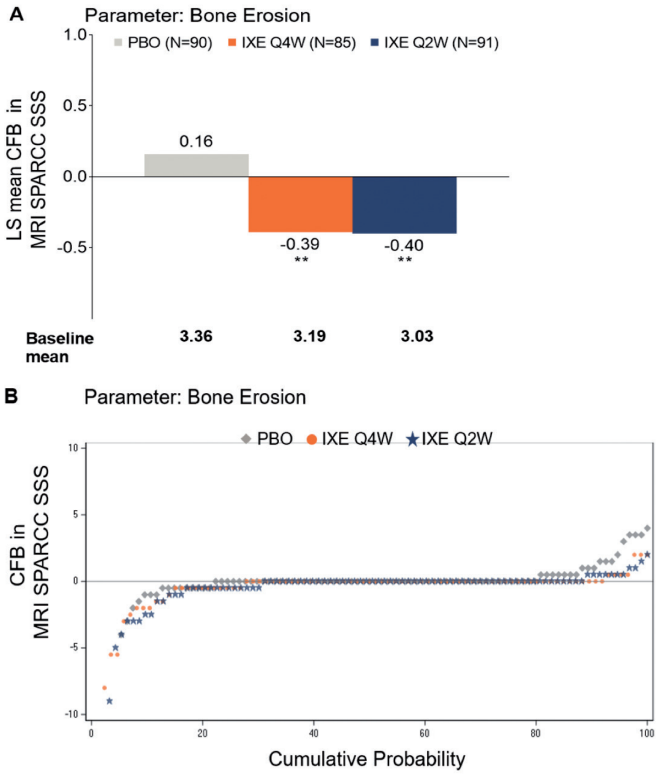
Aim. To evaluate the effect of treatment with ixekizumab versus placebo (PBO) on structural lesions in the sacroiliac joints (SIJ) at 16 weeks in patients with non-radiographic axial spondyloarthritis (nr-axSpA).
Methods. Patients with active nr-axSpA who were biologic-naïve (COAST-X, NCT02757352) were randomized 1:1:1 to receive double-blinded ixekizumab 80 mg every 4 (Q4W) or 2 weeks (Q2W) with an 80-mg or 160-mg starting dose at week 0 or PBO. SIJ magnetic resonance imaging (MRI) was assessed by Spondyloarthritis Research Consortium of Canada (SPARCC) SIJ structural score (SSS). Treatment comparisons used analysis of covariance based on observed cases.
Results. Of 303 randomized patients, 266 patients (Q4W: n=85, Q2W: n=91, PBO: n=90) with an MRI scan available at baseline and week 16 were included in this analysis. Mean SPARCC SSS for PBO and ixekizumab dose groups were similar at baseline (Fig. 1 and Table I). Significant reduction in SPARCC SSS for erosion was observed in both ixekizumab dose groups versus PBO (Fig. 1A). Increased erosion scores occurred for fewer patients in both ixekizumab dose groups versus PBO (Fig. 1B). Decreased erosion scores occurred for more patients in

P134. Table I. MRI SPARCC SSS change from baseline (CFB) at Week 16 (observed).

Parameters	PBO N=105	IXE Q4W N=96	IXE QZW N=102
Bone erosion			
Number pf patients[a]	90	85	91
Baseline mean	3.36	3.19	3.03
LS mean CFB (SE)	0.16 (0.13)	-0.39 (0.13)	-0.40 (o.13)
p-varie versus PBO	NA	0.003	0.002
Fat metaplasia			
Number of patients[a]	90	85	91
Baseline mean	1.41	1.71	1.05
LS mean CFB (SE)	-0.04 (0.058)	0.16 (0.059)	0.10 (0.057)
p-value versus PBO	NA	0.013	0.067
Backfill			
Number of patients[a]	90	84	91
Baseline mean	0.59	0.54	0.54
LS mean CFB (SE)	-0.10 (0.085)	0.21 (0.087)	0.22 (0.084)
p-value versus PBO	NA	0.011	0.006
Ankylosis			
Number of patients[a]	90	85	91
Baseline mean	0.06	0.38	0.08
LS mean CFB (SE)	0 (0.003)	0 (0.003)	0.01 (0.003)
p-value versus PBO	NA	NA	NA

Note: The ANCOVA model for observed case analysis includes treatment, geographic region, screening MRI/CRP status, and baseline value.
aOnly one patient in the IXE Q2W group had a change of 0.5; all other patients had no change.
ANCOVA: analysis of covariance; CFB: change from baseline; CRP: C-reactive protein; IXE: ixekizumab; LS: least squares; MRI: magnetic resonance imaging; N: number of patients in the analysis population; NA: not applicable; PBO: placebo; Q2W: every 2 weeks; Q4W: every 4 weeks; SE: standard error; SIJ: sacroiliac joints; SPARCC: Spondyloarthritis Research Consortium of Canada, SSS: SIJ structural score.

both ixekizumab dose groups versus PBO (Fig. 1B). Mean change from baseline in SPARCC SSS was significantly greater for ixekizumab for fat metaplasia (Q4W) and backfill (Q4W and Q2W) versus PBO (Table I). Changes in ankylosis were generally not observed (Table I).
Conclusions. Treatment with ixekizumab versus PBO led to significant reductions in erosions and significant increases in fat metaplasia and backfill in the SIJ in patients with nr-axSpA assessed at 16 weeks of treatment.



P134. Fig. 1. Mean CFB for IXE 80 mg versus placebo to week 16 in MRI SPARCC SSS bone erosion for A) summary data and B) individual patient-level data. The ANCOVA model for observes case analysis includes treatment, geographic region, screening MRI/CRP status, and baseline value, **p<.005 versus PBI.ANCOVA: analysis of covariance; CFB: change from baseline; CRP: C-reactive protein; IXE: Ixekizumab; LS: least squares; MRI: magnetic resonance imaging; N: number of patients with an MRI scan available at baseline and week 16; PRO: placebo; Q2W: every 2 weeks; Q4W: every 4 weeek; SIJ: sacroiliac joints; SPARCC: Spondyloarthritis Research Consortium of Canada; SSS: Structural score.

P135

EVALUATION OF SPINAL RADIOGRAPHIC PROGRESSION IN PATIENTS WITH RADIOGRAPHIC AXIAL SPONDYLOARTHRITIS RECEIVING IXEKIZUMAB THERAPY OVER 2 YEARS

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Introduction. We examined radiographic progression in the spine among patients with radiographic axial spondyloarthritis (r-axSpA, ankylosing spondylitis) treated with ixekizumab, an IL-17A antagonist, for 2 years, and potential predictors of spinal radiographic progression.
Methods. Patients with active r-axSpA, biologic-naive (COAST-V/NCT02696785) or with prior TNFi-experience (COAST-W/NCT02696798), received 80mg ixekizumab every 2 or 4 weeks for 2 years (108 weeks; 56 weeks in COAST-Y extension study/NCT03129100). Mean change from baseline of modified Stoke Ankylosing Spondylitis Spinal Score (mSASSS) for patients treated with ixekizumab for 2 years with data at both baseline and year 2 is presented (n=230; 54% of total randomized patients). Non-progression is presented for all patients and by TNFi-experience. Predictors were identified in multivariate logistic regression models with stepwise selection (p<0.1 for stay and removal). Data are observed.
Results. Table I shows baseline characteristics (n=230). The proportion of non-progressors (mSASSS change from baseline <2) over 2 years was 89.6% (all patients), 90.9% (biologic-naive), and 88.3% (TNFi-experienced), and, if defined as mSASSS change from baseline ≤0, 75.7%, 78.2%, and 73.3% (Table II). Predictors of structural progression at year 2 (mSASSS change >0, all patients, n=228) were age, baseline syndesmophytes, HLA-B27 status, and gender. Week 52 inflammation in MRI SPARCC spine was identified in a separate model (COAST-V, n=109).

P135. Table I. Baseline demographics and other characteristics for patients with active r-axSpA (ankylosing spondylitis)[a] treated with ixekizumab for 2 years.

	All patients[b] N=230
Age (years), mean (SD)	43.0 (11.5)
Male, n (%)	188 (81.7)
Duration of symptoms since axSpA onset (years), mean (SD)	15.9 (9.8)
Tobacco use, n (%)	
Ever	118 (51.3)
Never	112 (48.7)
Biologic-naive, n (%)	110 (47.8)
TNFi-experienced, n (%)	120 (52.2)
CRP mg/L, mean (SD)	15.2 (21.2)
mSASSS score, mean (SD)	11.0 (16.3)
Syndesmophyte present,[c] n (%)	91 (39.7)
HLA-B27 positive, n (%)	201 (87.4)
ASDAS score, mean (SD)	4.0 (0.7)
BASDAI score, mean (SD)	7.1 (1.3)

[a]BASDAI ≥4 and spinal pain ≥4 on a numeric rating scale.
[b]Combined ixekizumab group of Q2W and Q4W patients with baseline and year-2 mSASSS data.
[c]Identified by both selected readers at the same location (N=229).
Abbreviations: ASDAS=Ankylosing Spondylitis Disease Activity Score, axSpA=axial spondyloarthritis, BASDAI=Bath Ankylosing Spondylitis Disease Activity Index, CRP=C-reactive protein, mSASSS=modified Stoke Ankylosing Spondylitis Spinal Score, Q2W=every 2 weeks, Q4W=every 4 weeks, r-axSpA=radiographic axial spondyloarthritis, SD=standard deviation, TNFi=tumor necrosis factor inhibitor.

P135. Table II. Spinal radiographic changes* for patients with active r-axSpA (ankylosing spondylitis)[b] treated with ixekizumab for 2 years.

Change in mSASSS at year 2	All patients[c] N=230	Biologic-naive N=110	TNFi-experienced N=120
Baseline mSASSS, mean (SD)	11.0 (16.3)	10.1 (15.5)	11.7 (17.0)
Change at year 2, mean (SD)	0.3 (1.8)	0.3 (2.0)	0.4 (1.6)
Change in total mSASSS <2, n (%)	206 (89.6)	100 (90.9)	106 (88.3)
Change in total mSASSS ≤0, n (%)	174 (75.7)	86 (78.2)	88 (73.3)

Multivariate logistic regression model Prediction for change in total mSASSS >0, OR (95% CI), p-value		
All patients[c,d]	**N=228**	
Age (≥40 years vs. <40 years)	2.97 (1.41, 6.28)	p=0.004[e]
Baseline syndesmophytes[d] (yes vs. no)	2.31 (1.18, 4.54)	p=0.015[e]
Baseline HLA-B27 (positive vs. negative)	3.78 (1.04, 13.75)	p=0.044[e]
Gender (male vs. female)	3.16 (1.01, 9.86)	p=0.047[e]
Baseline ASDAS state (>3.5 vs. [2.1, 3.5])	2.26 (0.96, 5.34)	p=0.063
COAST-V (biologic-naive)[f]	**N=109**	
Week 52 inflammation in SPARCC spine (≥2 vs. <2)	2.91 (1.08, 7.83)	p=0.034[e]
Week 52 ASDAS (continuous)	1.97 (1.05, 3.69)	p=0.035[e]
Tobacco (ever vs. never)	2.51 (0.92, 6.90)	p=0.073

[a]Average score from 2 selected readers, blinded for time order
[b]BASDAI ≥4 and spinal pain ≥4 on a numeric rating scale
[c]Combined ixekizumab group of Q2W and Q4W patients with baseline and year-2 mSASSS data
[d]Identified by both selected readers at the same location (2 patients were not evaluable by both readers)
[e]p<0.05
[f]Patients with MRI measures available at baseline and week 52
Abbreviations: ASDAS=Ankylosing Spondylitis Disease Activity Score, BASDAI=Bath Ankylosing Spondylitis Disease Activity Index, CI=confidence interval, MRI=magnetic resonance imaging, mSASSS=modified Stoke Ankylosing Spondylitis Spinal Score, OR=odds ratio, Q2W=every 2 weeks, Q4W=every 4 weeks, r-axSpA=radiographic axial spondyloarthritis, SD=standard deviation, SPARCC=Spondyloarthritis Research Consortium of Canada, TNFi=tumor necrosis factor inhibitor.

Conclusions. The majority of patients treated with ixekizumab for 2 years did not show radiographic progression, and overall mean progression was low. Similar levels of non-progression were observed in biologic-naive and TNFi-experienced patients. Predictors were generally consistent with previous studies.

P136

PATIENTS WITH RADIOGRAPHIC AXSPA WHO PROGRESSED FROM ASAS20 AT WEEK 16 TO ASAS40 AT WEEK 52: RESULTS FROM COAST-W

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Introduction. The timeframe for maximum treatment response varies across patients with radiographic axial spondyloarthritis (r-axSpA). Understanding which patients may benefit from additional time on treatment could influence treatment decisions.
Objectives. To determine the percentage of patients, previously exposed to tumour necrosis factor inhibitor (TNFi), who progressed from Assessment of SpondyloArthritis International Society (ASAS)20 at week 16 to ASAS40 response at week52 with ixekizumab (IXE) treatment and to explore factors that may associate with additional improvement after 16weeks.
Methods. Patients who achieved ASAS20 at week16 from COAST-W (NCT02696798), a Phase 3, randomised, double-blind, placebo-controlled trial, in TNFi-experienced patients who fulfilled the ASAS criteria for r-axSpA, were analysed. Patients treated with IXE 80mg Q4W were categorised according to their ASAS response at week52: sustaining ASAS20 but not reaching an ASAS40 response or achieving ASAS40. Patient demographics and disease characteristics at baseline were analysed by descriptive statistics, and the individual components determining ASAS response at baseline and at week52 are provided.
Results. At week16, 22.8% (n=26/114) of patients achieved ASAS20 but not ASAS40; of these, 2 patients discontinued the study before week52. Amongst those who continued through week52, 50% (12/24) achieved ASAS40; the other 50% sustained their ASAS20 response. Patients who achieved ASAS40 at week52 were older, had longer disease duration, were less likely to be HLA-B27 positive, and had worse BASDAI and BASFI scores at baseline (table, part a). Achieving ASAS40 appeared to depend most on the Patient Global Assessment of Disease Activity and spinal pain score over time (Table I, part b).
Conclusion. For patients with r-axSpA previously exposed to TNFis and showing modest response to IXE over 16weeks, longer exposure to IXE may be required to achieve ASAS40.

P136. Table I. a) Demographics and characteristics at baseline (week 0).
b) Descriptive observed data for the individual corrispondents of the ASAS response criteria at week 52, mean (SD).

a)	IXEQ4W	
	Patients sustaining an ASAS20 but not reaching an ASAS40 response at week 52 (n=12)	Patients achieving an ASAS40 response at week 52 (n=12)
Age, years	47.3 (13.3)	49.6 (12.3)
Duration of symptoms since axSpA onset (years)	16.4 (9.2)	18.6 (12.6)
HLA B27 positive, n (%)	12 (100)	9 (75)
Current tobacco use, n (%)	4 (33.3)	1 (8.3)
ASDAS Score	4.0 (1.0)	4.2 (1.1)
BASDAI Score	7.4 (1.2)	7.8 (1.7)
Serum CRP concentration (mg/L)	23.0 (47.1)	28.0 (66.0)
Spinal Pain due to Ankylosing Spondylitis (NRS)	8.2 (0.8)	8.5 (1.6)
Patient Global Assessment of Disease Activity (NRS)	7.8 (1.3)	8.6 (1.2)
BASFI	7.1 (1.4)	7.4 (2.3)
BASDAI stiffness score	7.1 (1.5)	7.6 (2.2)
b)	IXEQ4W	
Patient Global Assessment of Disease Activity (NRS)	5.5 (1)	3.2 (1.3)
Spinal Pain due to Ankylosing Spondylitis (NRS)	5.6 (1)	3 (1.9)
BASFI	5.0 (1.5)	3.7 (2.1)
BASDAI stiffness score	4.1 (1.4)	3.4 (2.3)

Values are mean (SD) unless stated otherwise.

ASAS= Assessment of SpondyloArthritis International Society; ASDAS= Ankylosing Spondylitis Disease Activity Score; axSpa = axial spondyloarthritis; BASDAI= Bath Ankylosing Spondylitis Disease Activity Index; BASFI= Bath Ankylosing Spondylitis Functional Index; CRP= C-reactive protein; HLA= human leucocyte antigen; NRS = numeric rating scale; SD= standard deviation

P137

EXTRA-MUSCULOSKELETAL MANIFESTATIONS DRIVING THE THERAPEUTIC DECISION IN PATIENTS WITH SPONDYLOARTHRITIS: A 12-MONTH FOLLOW-UP STUDY

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Aim. To evaluate the prevalence of extra-musculoskeletal (MSK) manifestations, including recurrent acute anterior uveitis (AAUr), psoriasis (Ps), and inflammatory bowel disease (IBD), and their relevance to drive the treatment decision-making in SpA patients and their outcomes in a 12-Month follow-up.
Patients and Methods. SpA patients with any extra-MSK for therapeutic decision-making were enrolled in this retrospective study. Individuals with a history of any disease that could be associated with some of the studied endpoints, such as neoplasms and infectious diseases, were excluded. Specific tools related to each extra-MSK, including PASI (Psoriasis Area Severity Index), ophthalmologic evaluation and gut complaints were used at baseline and during the follow-up. Descriptive and inferential analyses, such as Pearson's correlation test, chi-squared test, and ANOVA, were used to evaluate the outcomes every 3 months and at the final visit. P-value less than 0.05 was set as significant.
Results. A total of 560 patients were enrolled, of whom 472 meet the eligibility criteria. The majority of them (N=274; 59.6%) had one or more extra-MSK manifestations related to SpA concept. Regarding their value in decision-making (N=141, 51.5%), Ps was the most prevalent (N=78 of 139; 28.5%), followed by AAUr (N=48 of 111; 17.5%) and IBD (N=15 of 24; 5.5%). Clinical improvement of extra-articular outcomes was observed in most patients over the 12-Month follow-up, especially in those with AAUr and IBD (p<0.001) (Table I).
Conclusion. Our results showed extra-MSK manifestations are prevalent in SpA patients and can help to guide the therapeutic decision-making approach, regardless musculoskeletal symptoms, suggesting the inter-disciplinarity among rheumatologists, ophthalmologists, dermatologists and gastroenterologist plays a crucial role to manage them.

P137. Table I. Disease activity over 12 months of follow-up, according to extra-musculoskeletal manifestations in SpA patients.

Variable	Baseline	Months 3 Mø	6 Mø	12 Mø	p
Active rAAU, n (%)	48 (100%)	11 (22.9%)	10 (20.8%)	7 (14.6%)	<0.001
Active Psoriasis, n (%)	78 (100%)	55 (70.5%)	48 (57.7%)	40 (51.3%)	<0.001
PASI	11.1 ± 10.5	6.9 ± 8.2	7.8 ± 11.6	3.4± 5.6	<0.001
Active IBD, n (%)	14 (93.3%)	8 (53.3%)	4 (26.7%)	4 (26.7%)	<0.001
Diarrhea episodes$_{mean}$/day	5.2 ± 3.0	3.3 ± 4.1	1.6 ± 3.0	1.5 ± 3.0	<0.001
Blood or mucus, n (%)	6 (40%)	6 (40%)	3 (20%)	2 (13.3%)	0.08
Abdominal Pain, n (%)	11 (73.3%)	5 (33.3%)	3 (20%)	4 (26.7%)	0.003

P138

TREAT-TO-TARGET IN AXIAL SPONDYLOARTHRITIS: AN OBSERVATIONAL STUDY IN DAILY PRACTICE

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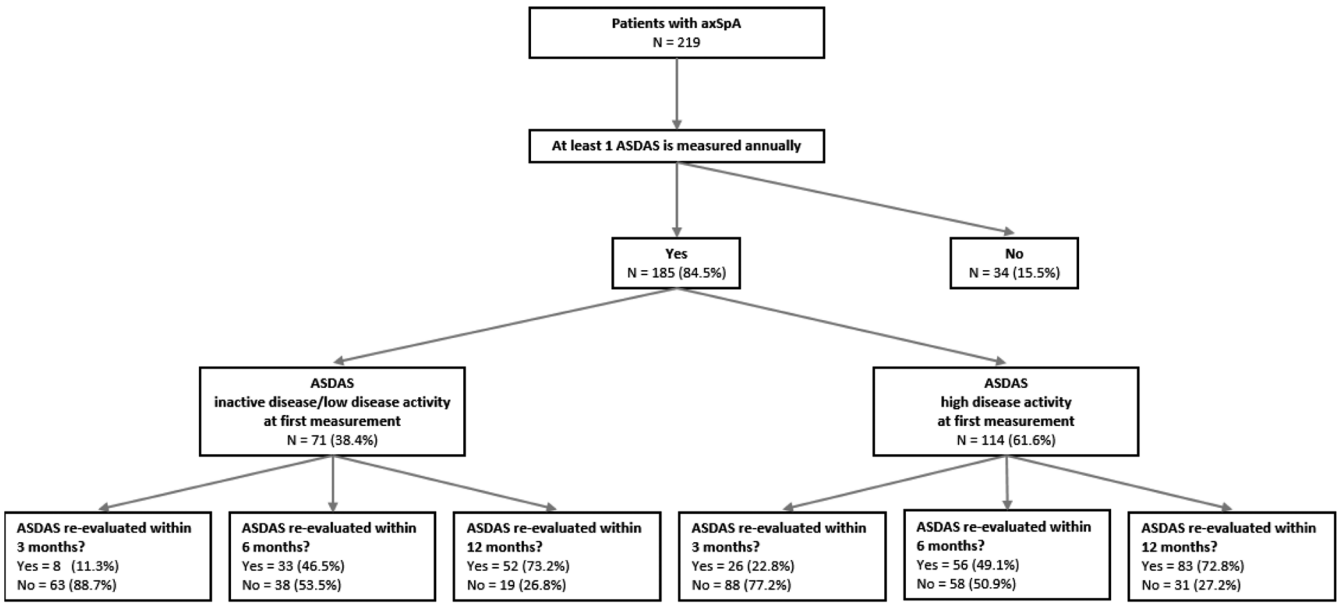
Introduction/Aims. Treat-to-target (T2T) management strategy requires regular monitoring of disease activity and treating patients towards a predefined target. Currently, the adherence to this strategy in patients with axial spondyloarthritis (axSpA) is unknown. The objective of this study is to evaluate the extent to which internationally agreed T2T recommendations were applied in clinical practice in patients with axSpA.
Methods. Data were used from a web-based patient registry for monitoring SpA in daily practice in the Netherlands (SpA-Net). The extent to which T2T was applied was evaluated through four indicators: the proportion of patients 1) with ≥1 Ankylosing Spondylitis Disease Activity Score (ASDAS) assessed during a 1-year period, 2) having inactive disease/low disease activity (ID/LDA, *i.e.* ASDAS<2.1), 3) in whom re-evaluation of ASDAS within recommended intervals

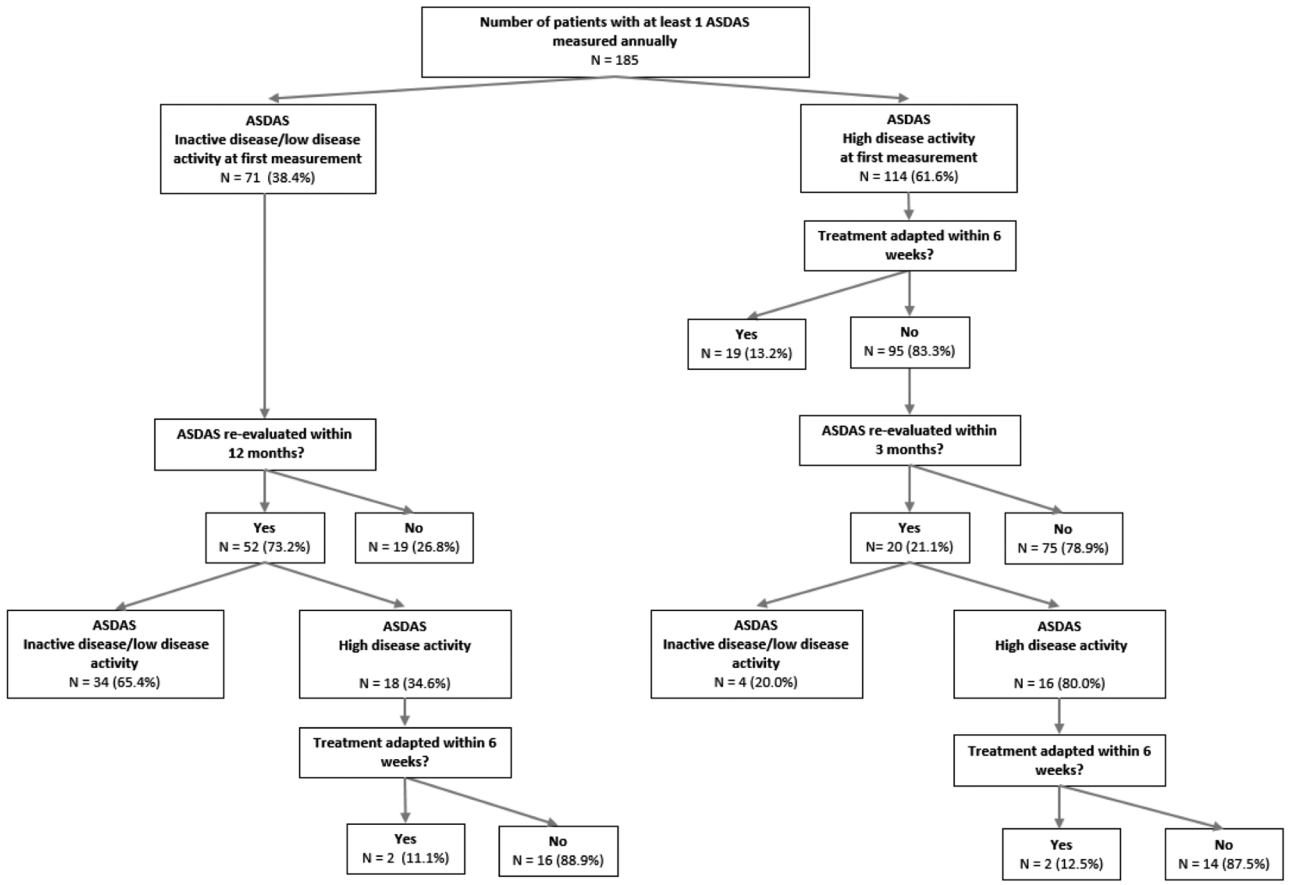
occurred, and 4) with high disease activity (HDA, *i.e.* ASDAS≥2.1) in whom treatment was adapted ≤6 weeks after obtaining ASDAS≥2.1. Patients with HDA with treatment adaptations were compared to patients with HDA without treatment adaptations.

Results. In 185 out of 219 patients (84%), disease activity was monitored with ≥1 ASDAS during a 1-year period, of whom 71 (38%) patients had a score below the target (ASDAS<2.1) at first measurement. Re-evaluation of ASDAS ≤3 months occurred in 11% and 23% of the patients with ID/LDA and HDA, respectively (Fig. 1). Treatment adaptation occurred in 19 out of 114 patients (13%) with HDA (Fig. 2). Patients in whom treatment was adapted, had significantly higher ASDAS (p<0.01), C-reactive protein levels (p<0.05), and physician global assessment (p<0.05) compared to patients without treatment adaptations.

Conclusions. T2T was applied to a limited extent in clinical practice in patients with axSpA. Available disease activity scores seemed not to be used for determining the frequency of re-evaluation nor treatment adaptation.



P138. Fig. 1. Flowchart of patients with axSpA and measurements of ASDAS within the study period in SpA-Net.



P138. Fig. 2. Flowchart of patients, re-evaluation and treatment adaptations based on ASDAS scores.

P139

SUBSETS OF Th- AND CYTOTOXIC T-CELLS IN PATIENTS WITH AXIAL SPONDYLOARTHRITIS TREATED WITH BIOLOGIC AGENTS

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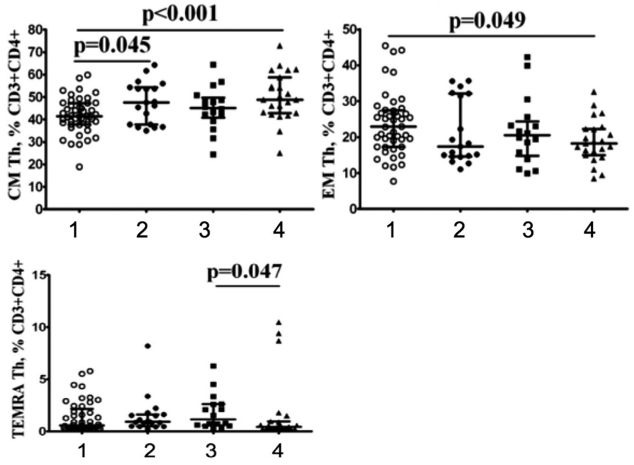
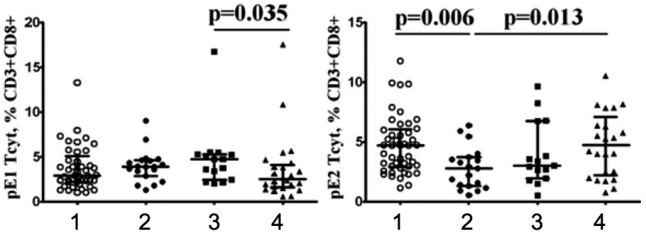
Introduction. The use of biologics (tumor necrosis factor inhibitors (anti-TNF) and inhibitor of interleukin-17 (anti-IL17) is the second-line of the treatment of axial spondyloarthritis (axSpA) in case of nonsteroidal anti-inflammatory drugs (NSAIDs) fail. The functional activity of T-lymphocytes largely determines the state of the immune and inflammatory processes in axSpA and accordingly can affect the effectiveness of biologic agents.
Aim. of our study was to investigate subsets of Th- and cytotoxic T-lymphocytes in patients with axSpA received various biologic agents.
Materials and Methods. The study included 59 patients: men 44 (74.6%), women 14 (25.4), age 40.0 [32.0; 47.0], HLA-B27 positive 49 (83.1%). All patients received NSAIDs alone (n=19) or with biologic agents (anti-TNF, n=24 or anti-IL17, n=16) for at least 6 months (1.5 [1.0; 4.5] years). 44 healthy people were examined as a control. The study of Th-cells and cytotoxic T-lymphocytes subsets was carried out by flow cytometry (Navios EX Flow Cytometer, Beckman Coulter, USA).
Results. An increase in the number of T-helpers of central memory (CM, $CD3^+CD4^+CD45RA^-CD62L^+$) and the EM4 ($CD3^+CD8^+CD45RA^-CD62L^-CD27^-CD28^+$) subset of cytotoxic T-lymphocytes with a decrease in pE2-cells ($CD3^+CD8^+CD45RA^+CD62L^-CD27^+CD28^-$) were found in patients with axSpA received NSAIDs (Fig. 1 and 2). The content of various subsets of T-lymphocytes in patients with anti-IL17 therapy corresponds to the control values. The levels of the following T-lymphocyte fractions changed during anti-TNF therapy: an increase in the number of CM Th-cells, decrease in EM ($CD3^+CD4^+CD45RA^-CD62L^-$) and TEMRA ($CD3^+CD4^+CD45RA^+CD62L^-$) Th-lymphocytes, a decrease in pE1-cells ($CD3^+CD8^+CD45RA^+CD62L^-CD27^+CD28^+$) and an increase in pE2-cells.
Conclusion. The most pronounced changes in the subsets of T-lymphocytes were found in patients with axSpA on the background of anti-TNF therapy which manifests itself in a decrease in the effector potential of Th-cells and cytotoxic T-lymphocytes.



P139. Fig. 1. The content of Th-cells in patients with axSpA received NSAID versus biologic agents.
1 – Control group, 2 – NSAIDs, 3 – anti-IL17, 4 – anti-TNF; CM – central memory, EM - effector memory, TEMRA – terminally differentiated effector memory.



P139. Fig. 2. Content of cytotoxic T-cell subsets in patients with axSpA received NSAIDs versus biologic agents. Tcyt – cytotoxic T lymphocytes.

P140

TOCILIZUMAB IN HLA-B27 POSITIVE, SEVERE PERIPHERAL SPONDYLOARTHRITIS

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Introduction. Inhibition of IL-6 is an approved treatment for certain inflammatory autoimmune diseases with an increasing evidence of possible effect in many others. In Spondyloarthritis (SpA) patients, 2 randomized controlled trials failed to demonstrate efficacy of IL-6 inhibition. However, there are not any data about SpA patients with predominant peripheral involvement who are resistant to treatment with approved biologic DMARDs.
Aim. To assess the effectiveness of Tocilizumab (TCZ), an IL-6 receptor antagonist, in patients with Peripheral SpA according to ASAS classification criteria, who have previously failed to other approved biologic DMARDs.
Methods. Retrospective case series from a tertiary care hospital. We identify 3 patients with peripheral SpA that received Tocilizumab therapy, after failure of multiple biologic DMARDs. All patient received Tocilizumab after a permission from the Greek National Organization of Drugs.
Results. Three patients, 2 males and 1 female received TCZ. None of them had history of uveitis, psoriasis or inflammatory bowel disease, while all three had negative RF and anti-CCP antibodies. All three had severe erosive peripheral synovitis and one patient underwent knee synovectomy. The last one, had evidence of sacroiliitis on plain x-ray and also constitutional symptoms with low grade fever (up to 38 C) which had responded excellent to TCZ treatment. Clinical characteristics and previous biological exposure are shown in Table I. All cases showed a response at 6 months in objective measures of disease activity such as C reactive protein (CRP), swollen (SJC) and tender joint counts (TJC) and improvement in VAS pain and HAQ score. (Table II). Only one patient is still on TCZ treatment (24 months) while the others had secondary failure (after 10 and 14 months respectively). TCZ was well tolerated in all cases.
Conclusions. Inhibition of IL-6 with tocilizumab might be a therapeutic option in a subset of SpA patients with severe peripheral arthritis resistant to approved biologic DMARDs.

P140. Table I. Clinical characteristics and previous biologic treatments of reported cases.

	Case 1	Case 2	Case 3
Sex	Male	Male	Female
Age	25	54	50
Disease duration (years)	6	8	12
HLA B27	positive	positive	positive
IBD	No	No	No
Psoriasis	No	No	No
Uveitis	No	No	No
Axial disease	No	Yes	No
Previous biologics	ETN (PF) ADA (SF)	GOL, ETN, SEC (PF) ADA, INF (SF)	SEC, TOFA (PF) INF, GOL, ADA (SF)
Concomitant cDMARDs	MTX	MTX	LEF
Duration of TCZ exposure (months)	10	14	24

PF: Primary failure; SF: Secondary failure; ADA: Adalimumab; ETN: Etanercept; GOL: Golimumab; INF: Infliximab; SEC: Secukinumab; TOFA: Tofacitinib; MTX: Methotrexate; LEF: Leflunomide; TCZ: Tocilizumab; cDMARDs: conventional Disease Modified Antirheumatic Drugs.

P140. Table II. Clinical and disease parameters at initiation and 6 months after exposure.

	Pre-TCZ	months	Pre-TCZ	months	Pre-TCZ	months
CRP (mg/dl)	21	0.8	28	1	8	0.9
SJC (64)	8	4	8	4	6	3
TJC (66)	9	4	6	3	7	3
VAS (pain)	80	50	70	40	70	30
HAQ	1.25	0.63	1.13	0.63	1.25	0.5

CRP: C-Reactive Protein; SJC: Swollen Joint Count; TJC: Tender Joint Count; VAS: Visual Analogue Scale; HAQ: Health Assessment Questionnaire.

P141

INHIBITION OF INTERLEUKIN 17 REDUCES MYOCARDIAL DYSFUNCTION IN PATIENTS WITH ANKYLOSING SPONDYLITIS

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In ankylosing spondylitis (AS), early subclinical changes in the myocardium mostly remain undiagnosed. The impact of genetic engineering biological therapy on these changes is also unclear.
Aim. To establish the relationship between taking of secukinumab and changes in systolic and diastolic myocardial function in patients with AS.
Material and Methods. 69 patients with AS were examined, of which the first group included 33 people (average age 38.8±4.74, 63.6% of men) who received the interleukin 17 inhibitor (IL17) - secukinumab, the second group - 36 people who did not receive biological therapy, average age 42.5±11 years, 66.7% of men. The control group included 40 healthy individuals, comparable in gender and age. Patients underwent tissue dopplerography of the heart, transthoracic echocardiography and determination of the level of matrix metalloproteinase-9 (MMP-9) in blood serum.
Results. The patients with AS had significantly higher left ventricular mass index and ejection fraction (p<0.01) compared to the control group. Moreover, among patients who do not take biological therapy, the indicators were the highest, diastolic dysfunction was diagnosed only in this group - in 38.9%. Against the background of the use of secukinumab, an increase in the systolic function of the myocardium was revealed. Analysis of the level of MMP-9 in the blood serum of patients with AS revealed significant differences with the control group. In both group patients, it was higher than in the control group: 176,26 [165,7; 186,03], 170,66 [131,01; 190,44], 103,85 [74,32; 120,56] ng/ml, respectively (p<0.001). In the group of patients taking secukinumab, the rise of MMP-9 was associated with a deterioration of right ventricular systolic function (r=-0.53, p=0.02) and left ventricular diastolic function (r=0.58, p=0.01).
Conclusions. The patients with AS are characterized by a high frequency of subclinical heart dysfunction. Inhibition of IL17 can reduce diastolic dysfunction, which is confirmed by an improvement in myocardial contractility during secukinumab therapy.

P142

ULTRASOUND-GUIDED INJECTIONS OF SACROILIAC JOINT – AN OLD AND A NEW TREATMENT!

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Introduction. Sacroiliitis, a feature of axial spondyloarthritis (axSpa), can be identified by plain radiographs and magnetic resonance imaging. Its management involves non-pharmacological and pharmacological treatments. Besides systemic therapies including non-steroidal anti-inflammatory (NSAIDs) and biologic agents, local articular injections may also be indicated. Some studies evaluated the effectiveness of therapy of sacroiliitis with local glucocorticoids injection in sacroiliac joint (SIJ) and it appears to be safe and effective and to provide prolonged pain relief. The aim of this study is to evaluate the efficacy of ultrasound-guided injections of SIJs in patients with axSpa.
Methods. All patients involved fulfilled ASAS 2009 criteria of axSpA with acute sacroiliitis and were poorly controlled by conventional therapy (physical exercise, physiotheraphy, NSAIDs at maximum tolerated dosing ≥4 weeks). Sociodemographic and clinical data were collected. The single ultrasound-guided injections of SIJs were performed with 2mL of lidocaine 1% and 40mg of methylprednisolone at baseline. BASDAI, BASFI, *ASDAS* were recorded at baseline and at 4-6th and 12th weeks after ultrasound-guided injections. A descriptive analysis was performed and ANOVA test was used to compare continuous variables. p-value <0.05 was statistically significant.
Results. Twenty-five patients were included (21 females and 4 men) averaging 48.3±9.9 years old with a mean body mass index of 24.6±3.4. Six patients had radiographic involvement and the remaining non-radiographic involvement. The mean disease duration was 3.7±4.8 years. A decrease in the mean of BASDAI and ASDAS indexes was observed at 4-6th and 12th weeks after the procedure, as shown in Table I. Significant differences in response were found over time in ASDAS and BASDAI. BASFI, unlike the rest, showed a slight increase between the three moments, but no significant differences during this period.
Discussion/Conclusions. Our experience suggests that ultrasound-guided injections of SIJs appears to be effective for pain and symptom control, with improvement in disease activity, as previous studies demonstrated. Our goals for the next study will be to increase our sample size and the time of follow-up.

P142. Table I. Mean and standard deviation of clinical outcomes at baseline, 4-6th and 12th weeks.

		Baseline (μ±SD)	4-6th weeks	12th weeks	p
Clinical outcomes	BASDAI	5.6±1.9	4.4±2.0	4.3±2.1	0.011
	BASFI	3.9±1.9	4.0±2.3	4.4±2.7	0.745
	ASDAS	3.0±0.7	2.5±0.5	2.2±1.3	0.001

P143

LOWER LEVELS OF PHYSICAL ACTIVITY ARE ASSOCIATED WITH EVASIVE COPING, HIGHER BMI AND WORSE OUTCOME IN PATIENTS WITH AXSPA

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Introduction. Regular physical activity (PA) in patients with axial spondyloarthritis (axSpA) decreases pain, improves function and spinal mobility and is protective of fatigue. However, the level of PA in patients with axSpA is generally lower than in healthy controls. Therefore, we aimed to determine whether patient and disease-related factors including coping strategies, anxiety and depression are associated with daily PA.
Methods. Consecutive patients from the Groningen Leeuwarden axSpA (GLAS) cohort completed the modified Short Questionnaire to assess health-enhancing PA (mSQUASH), Coping with Rheumatic Stressors (CORS) and Hospital Anxiety and Depression Scale (HADS). Univariate and multivariable linear regression analysis were performed to explore associations of PA with patient and disease-related factors.
Results. 85 axSpA patients were included, 59% males, mean age 50 (±14) years, 71% HLA-B27+. Univariate analysis showed significant associations of less PA with higher disease activity (BASDAI), lower physical function (BASFI), more influence of the disease on wellbeing, higher depression scores, more use of the coping strategies "decreasing activities" and "pacing", and lower quality of life (ASQoL). Coping strategy "decreasing activities" and higher BMI showed an independent association with level of PA in multivariate analysis. Comparison of the patient and disease-related factors in the tertiles with lowest and highest PA level confirmed these results.
Conclusions. In this cross-sectional study in patients with established axSpA disease, the evasive coping strategy "decreasing activities" and higher BMI were independently associated with lower PA levels. Overall outcome measures are better in axSpA patients with a high level of PA compared to patients with low level of PA. Unravelling the complex relationship between patient and disease related factors influencing PA will lead to a more patient-centred intervention to increase PA in axSpA.

P144

EFFECTIVENESS AND TREATMENT RETENTION OF TNF-INHIBITORS WHEN USED AS MONOTHERAPY VERSUS CO-MEDICATION WITH csDMARDs IN 15332 PATIENTS WITH PSORIATIC ARTHRITIS. DATA FROM THE EuroSpA COLLABORATION

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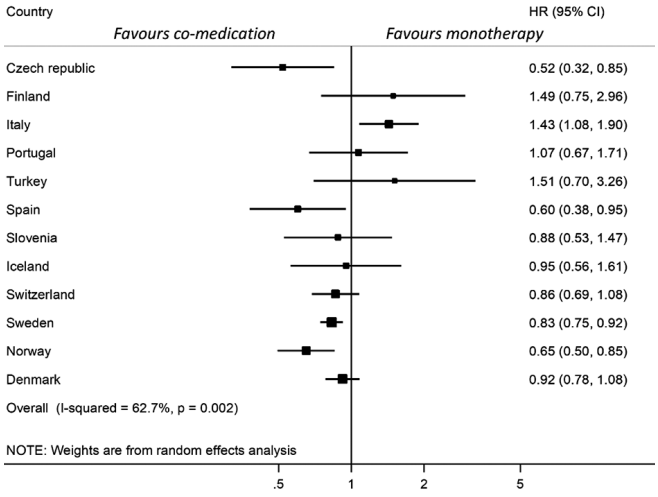
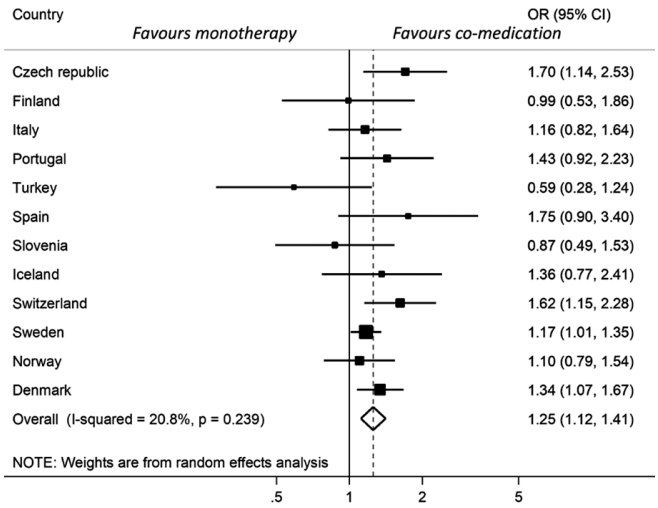
Introduction. Co-medication with conventional synthetic disease modifying anti-rheumatic drugs (csDMARDs) during treatment with tumour necrosis factor inhibitors (TNFi) is extensively utilized in psoriatic arthritis (PsA), although the additive benefit remains unclear.
Aim. To compare treatment outcomes in PsA patients treated with TNFi and csDMARD co-medication versus TNFi monotherapy.

Methods. Patients with PsA from 13 European countries who initiated a first TNFi in 2006-2017 were included. Country-specific comparisons of one-year TNFi retention were performed for csDMARD, together with hazard ratios (HR) for TNFi discontinuation (co-medication vs monotherapy), adjusted for age, sex, calendar year, disease duration and DAS28. Adjusted odds ratios (OR) of clinical remission (based on DAS28) at 12 months were calculated. Between-country heterogeneity was assessed. Combined results were presented when heterogeneity was not significant using random-effect meta-analyses. Secondary analyses stratified according to TNFi subtype (adalimumab/infliximab/etanercept) and restricted to methotrexate as co-medication were performed.
Results. 15332 patients were included (62% co-medication, 38% monotherapy). TNFi retention varied across countries, with significant heterogeneity precluding a combined estimate (Fig. 1). Co-medication was associated with better remission rates, pooled OR 1.25 (1.12-1.41) (Fig. 2). Methotrexate co-medication was associated with improved remission for adalimumab (OR 1.45 (1.23-1.72)) and infliximab (OR 1.55 (1.21-1.98)), and improved retention for infliximab. No beneficial effect of co-medication was demonstrated for etanercept.
Conclusions. This large observational study suggests that, as used in clinical practice, csDMARD and TNFi co-medication is associated with improved treatment outcomes. Specifically, co-medication with methotrexate increases remission rates for adalimumab and infliximab, and retention for infliximab.



P144. Fig. 1. Forest plot of country-specific hazard ratios for TNF-inhibitor discontinuation comparing TNFi and csDMARD co-medication with TNFi monotherapy, ordered by overall TNFi retention rate per country. Adjusted for baseline age, sex, calendar year, DAS28, and disease duration.



P144. Fig. 2. Forest-plot of country-specific odds ratios and overall odds ratio for clinical remission at 12 months in TNFi and csDMARD co-medication compared with TNFi monotherapy. Adjusted for baseline age, sex, calendar year, DAS28, and disease duration.

P145

COXITIS IN ANKYLOSING SPONDYLITIS (AS) TREATED WITH TNF-ALPHA INHIBITOR GOLIMUMAB: RESULTS OF A 24-MONTHS OBSERVATION (GO-COX STUDY)

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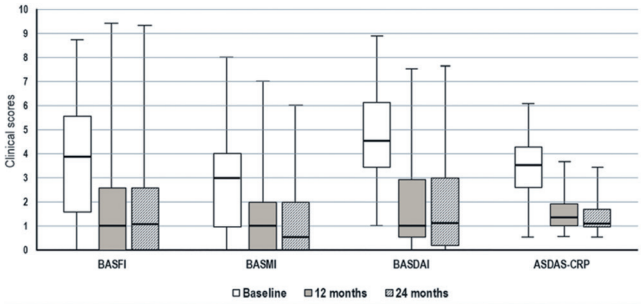
Introduction. Number of studies on coxitis in AS treated with biologics was limited at time of this study initiation. The aim of this study was to evaluate clinical changes measured by BASFI, BASMI, BASDAI, ASDAS-CRP and radiological changes in AS patients with coxitis (BASRI-hip, hip MRI [STIR- and T1-weighted sequences], hip US) after 12 and 24 months of treatment with TNF alpha inhibitor golimumab from baseline.
Methods. A non-interventional prospective cohort study. Bio-naïve patients with AS and coxitis were treated with golimumab in daily clinical practice in 5 clinics across Russia with follow up for 24 months. This analysis includes data from 30 patients who completed the follow up.
Results. 66,7% of participants (20 out of 30) were male, with mean (SD) age of 33.2 (9.4) years, mean (SD) duration of AS was 36.2 (42.1) months, mean (SD) duration of coxitis was 36.9 (44.1) months. Baseline mean (SD) scores were: BASFI 3.9 (2.5), BASMI 3.1 (2.5), BASDAI 4.9 (2.0), ASDAS-CRP 3.5 (1.2). The clinical results (medians, interquartile ranges, min and max) are presented in a Fig. 1 below. Baseline mean (SD)/median BASRI-hip was 1.1 (0.8)/1.0 on the right and on the left. Changes of mean/median BASRI-hip score at 12 and 24 months: 0.3/0.0 (p=0.2344) and 0.3/0.0 (p=0.1368) on the right; 0.4/0.0 (p=0.0352) and 0.4/1.0 (p=0.0735) on the left. MRI and US findings are presented in a Table I below.
Conclusions. Therapy with TNF alpha inhibitor golimumab in AS patients with coxitis was accompanied with statistically significant improvement of clinical scores, improvement of MRI and US findings without obvious structural progression.



P145. Fig. 1. Clinical results.

P145. Table I. Radiological findings.

Hip	MRI findings, paired analysis	Patients (%), n=27		Patients (%), n=23	
		Baseline	At 6 months	Baseline	At 12 months
Right	No findings	33.3	48.1	39.1	56.5
	Subchondral bone marrow edema (SBME)	37.0	11.1	34.8	8.7
	Joint effusion	74.1	25.9*	73.9	17.4*
	Enthesitis	33.3	11.1	34.8	21.7
	Fatty degeneration	37.0	55.6	34.8	52.2
Left	No findings	29.6	51.9	30.4	52.2
	SBME	18.5	3.7	8.7	4.3
	Joint effusion	63.0	22.2*	60.9	21.7
	Enthesitis	22.2	18.5	17.4	21.7
	Fatty degeneration	33.3	55.6	30.4	52.2
Hip	US findings, paired analysis	Patients (%), n=28		Patients (%), n=27	
		Baseline	At 6 months	Baseline	At 12 months
Right	No findings	14.3	50.0*	18.5	51.9*
	Joint effusion	46.4	25.0	51.9	11.1*
	Enthesitis	25.0	14.3	18.5	14.8
Left	No findings	14.3	50.0*	18.5	55.6*
	Joint effusion	42.9	28.6	48.1	25.9
	Enthesitis	17.9	17.9	11.1	18.5

*p<0.05

P146

EFFICACY AND SAFETY OF UPADACITINIB IN PATIENTS WITH PSORIATIC ARTHRITIS AND AXIAL INVOLVEMENT

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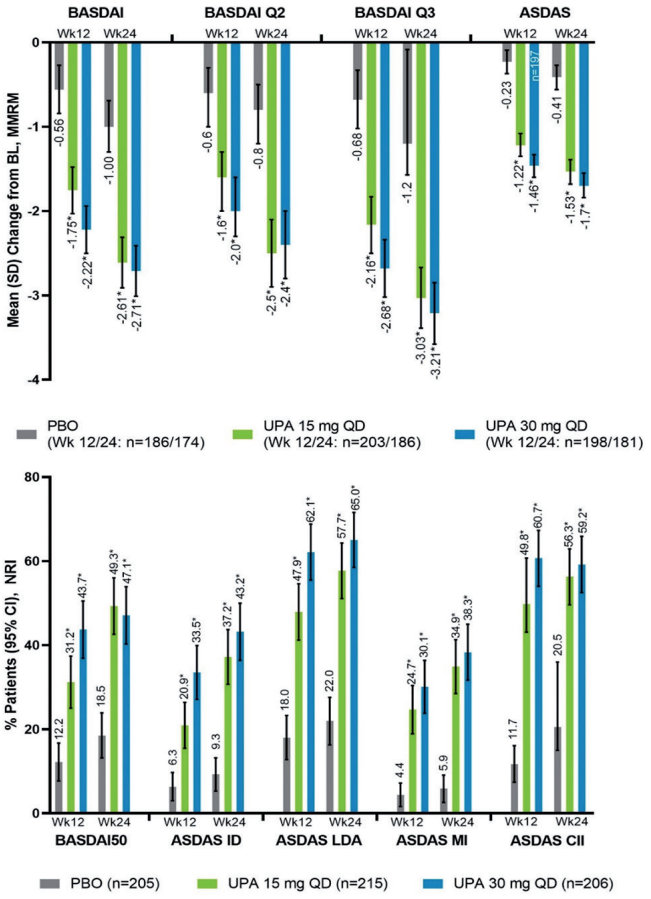
Background/Aims. Patients with psoriatic arthritis (PsA) and axial involvement exhibit greater disease activity and quality of life impairments compared with those without axial involvement. We characterize PsA patients with and without axial involvement and compare efficacy of UPA vs placebo (PBO) in PsA patients with axial involvement.
Methods. In SELECT-PsA 1 (N=1705, non-biologic DMARD IR) and SELECT-PsA 2 (N=642, biologic DMARD IR), patients with active PsA(≥3 swollen and ≥3 tender joints), active or historical psoriasis, and on ≤2 non-biologic DMARDs were randomized to once daily UPA 15 and 30 mg, adalimumab 40 mg every other week (SELECT-PsA 1 only), or PBO. Efficacy assessed in patients with axial involvement (diagnosed by investigators based on totality of information) was pooled from the 2 studies. Assessments included change from BL in BASDAI, BASDAI Q2 and Q3, AS Disease Activity Score (ASDAS-CRP), and percentage with BASDAI 50 response, ASDAS inactive disease (ID), ASDAS low disease activity (LDA), ASDAS major improvement (MI), and ASDAS clinically important improvement (CII). Uveitis and inflammatory bowel disease (IBD) adverse events were reviewed. PBO-controlled 24-week data are presented.
Results. Prevalence of axial involvement was 31.3% in SELECT-PsA 1 and 34.2% in SELECT-PsA 2 (Table I). Treatment with UPA 15 and 30mg resulted in significantly greater improvements from BL in BASDAI, BASDAI Q2 (neck/back/hip pain) and Q3 (joint swelling/pain) and ASDAS-CRP at weeks 12 and 24 vs PBO. Similarly, significantly higher percentages of patients on UPA 15 and 30mg achieved BASDAI 50, ASDAS ID, LDA, MI, and CII at weeks 12 and 24 vs PBO (Fig. 1). One patient on UPA 30mg had incident uveitis, and no IBD was reported on UPA.
Conclusions. PsA patients with axial involvement had higher BL disease burden compared with those without axial involvement. UPA was efficacious in treating axial symptoms in patients with psoriatic spondylitis.



P146. Fig. 1. Integrated analysis of efficacy in PsA patients with axial involvement.
ASDAS: Ankylosing spondylitis disease activity sore; BL: baseline; CII: clinically important improvement; ID: inactive disease; LDA: low disease activity; MI: major improvement; MMRM: mixed-effects model repeated measurement; NRI: non-responder imputation; OD: once daily; UPA: upadacitinib, *p<0.0001, UPA vs placebo; nominal p-values are presented and were not adjusted for multiple testing.
MMRM analysis with unstructured variance-covariance matrix, including treatment, visit, treatment-by-visit interaction, study, and the stratification factor of current DMARD use (yes/no) as fixed factors and the continuous fixed covariates of baseline measurement.
NRI analysis with nominal p-value constructed using the Mantel-Haensxel estimation adjusting for study and the main stratification factor of current DMARD use (yes/no); 95% CI for response rate calculated based on normal approximation to the binomial distribution.

P146. Table I. Demographics and baseline characteristics.

	SELECT-PsA 1 Study			SELECT-PsA 2 Study		
	With Psoriatic Spondylitis (n=534)	Without Psoriatic Spondylitis (n=1170)	P value*	With Psoriatic Spondylitis (n=219)	Without Psoriatic Spondylitis (n=421)	P value*
Female, n (%)	281 (52.6)	626 (53.5)	0.7348	116 (53.0)	231 (54.9)	0.6469
Age (years), mean (SD)	49.9 (13.0)	51.2 (11.9)	0.0611	52.5 (11.8)	53.8 (11.9)	0.1878
Weight (kg), mean (SD)	84.9 (19.6)	87.1 (20.6)	**0.0446**	89.7 (23.5)	88.4 (22.4)	0.5018
BMI (kg/m²), mean (SD)	29.9 (6.5)	30.5 (6.9)	0.0810	31.6 (8.0)	31.3 (6.9)	0.6226
Duration of PsA symptoms (years), mean (SD)	10.0 (9.1) n=533	8.9 (8.3) n=1170	**0.0162**	13.0 (9.6) n=216	13.5 (11.0) n=420	0.5620
Tender Joint Count 68, mean (SD)	21.6 (15.1)	19.2 (13.5)	**0.0022**	27.5 ± 18.0	23.3 ± 16.2	**0.0027**
Swollen Joint Count 66, mean (SD)	11.7 (9.4)	11.0 (7.9)	0.1184	12.9 (9.2)	11.7 (8.7)	0.0804
Physician's Global Assessment (NRS 0–10), mean (SD)	6.7 (1.6)	6.5 (1.7)	**0.0437**	6.6 (1.8)	6.5 (1.7)	0.1897
HAQ-DI , mean (SD)	1.2 (0.6) n=531	1.1 (0.6) n=1164	**0.0170**	1.2 (0.6) n=218	1.2 (0.7) n=416	0.2049
CRP (mg/L), mean (SD)	12.8 (18.5)	10.5 (13.7)	**0.0127**	10.0 (16.4)	11.1 (18.9)	0.4227
BSA with psoriasis, n (%)						
<3%	250 (46.8)	608 (52.0)	**0.0486**	94 (42.9)	154 (36.6)	0.1181
≥3%	284 (53.2)	562 (48.0)		125 (57.1)	267 (63.4)	
Presence of Dactylitis†, n (%)	188 (35.2)	328 (28.0)	**0.0028**	69 (31.5)	100 (23.8)	**0.0348**
Presence of Enthesitis‡, n (%)	432 (80.9)	884 (75.6)	**0.0147**	189 (86.3)	337 (80.0)	**0.0125**
ASDAS–CRP, mean (SD)	3.4 (0.9) n=530	3.1 (1.0) n=1161	**<0.0001**	3.3 (1.0) n=217	3.2 (1.1) n=416	0.1032
BASDAI, mean (SD)	5.8 (2.0) n=530	5.3 (2.2) n=1161	**<0.0001**	6.2 (2.2) n=217	5.8 (2.2) n=416	0.0673
Morning Stiffness Duration (NRS 0–10; BASDAI Q6), mean (SD)	5.0 (3.0) n=530	4.7 (3.0) n=1161	**0.0368**	5.6 (3.2) n=217	5.1 (3.0) n=416	**0.0454**
Patient's Assessment of Inflammatory Neck, Back, or Hip Pain (NRS 0–10; BASDAI Q2), mean (SD)	5.8 (2.7) n=530	4.6 (3.2) n=1161	**<0.0001**	6.4 (2.8) n=217	5.4 (3.1) n=416	**0.0001**
Patient's Assessment of Overall Pain in Joints Other Than Neck, Back, or Hips (NRS 0–10; BASDAI Q3), mean (SD)	6.2 (2.4) n=530	5.9 (2.6) n=1161	**0.0286**	6.3 (2.3) n=217	6.2 (2.6) n=416	0.5308

ASDAS, ankylosing spondylitis disease activity score; BASDAI, Bath ankylosing spondylitis disease activity index; BMI, body mass index; CRP, C–reactive protein; HAQ–DI, health assessment questionnaire disability index; NRS, numeric rating scale; PsA, psoriatic arthritis. Treating rheumatologist assessed whether or not the patient has psoriatic spondylitis taking into consideration all that was known about the patient. *Calculated by t-test for continuous variables; calculated by chi-square test for categorical values (statistically significant P values [<0.05] are bolded). †Defined as Leeds Dactylitis Index >0. ‡Defined as Total Enthesitis Count >0.

P147

EFFECT OF UPADACITINIB ON REDUCING PAIN IN PATIENTS WITH ACTIVE ANKYLOSING SPONDYLITIS AND INADEQUATE RESPONSE TO NSAIDs

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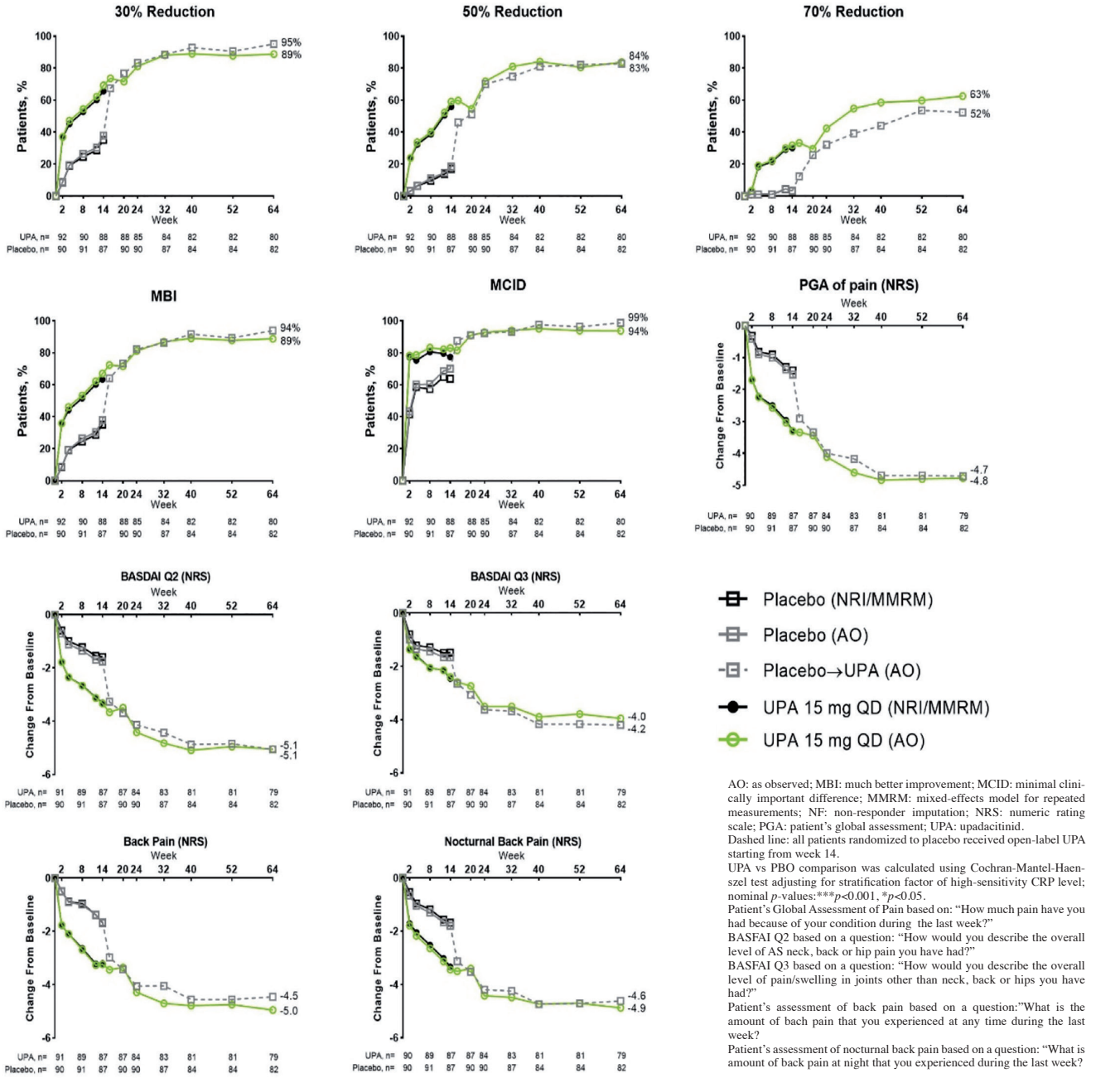
Aim. In patients with active ankylosing spondylitis (AS), we evaluate efficacy of upadacitinib (UPA) vs placebo (PBO) using multiple pain assessments through 64 weeks.
Methods. SELECT-AXIS1 patients with AS and IR ≥2 NSAIDs were studied (1:1,UPA15 mg QD, n=93, PBO, n=94,14wks, Period 1); followed by open-label (UPA15 mg QD, 90Wk extension, Period 2), through wk 64. Endpoints included proportion of patients achieving ≥30%/≥50%/≥70% reduction in Patient's Global Assessment (PGA) of pain on a numeric rating scale (NRS 0-10), minimal clinically important difference (MCID), and much better improvement (MBI), in PGA of pain. Additionally, mean change from baseline in PGA of pain, BASDAI Q2 and Q3, and back pain (including nocturnal) NRS scores were assessed.
Results. Significantly higher proportion of patients receiving UPA vs PBO achieved reductions in all PGA of pain assessments from wk 2 and response rates increased and were sustained throughout Period 1. The exception, ≥70% reduction was significant at wk 4 and sustained thereafter. For MCID, increase from BL to wk 2 was observed and plateaued thereafter. Mean change from BL in PGA of pain, BASDAI Q2, back pain, and nocturnal back pain NRS scores were significantly greater for UPA vs PBO at all time points in Period 1; BASDAI Q3 was significant at wk 8 and 14. UPA effect on pain reduction sustained through wk 64. PBO patients switched to UPA at wk 14 generally showed similar pain reduction as those initially randomized to UPA (Fig. 1).
Conclusion. Greater proportion of patients with active AS and IR/contraindication to NSAIDs achieved rapid, significant, and clinically meaningful reductions in pain on UPA vs PBO through 14 wks; sustained through 64wk. Patients switched from PBO to UPA reached same pain reduction levels as continuous UPA group.



AO: as observed; MBI: much better improvement; MCID: minimal clinically important difference; MMRM: mixed-effects model for repeated measurements; NF: non-responder imputation; NRS: numeric rating scale; PGA: patient's global assessment; UPA: upadacitinid.
Dashed line: all patients randomized to placebo received open-label UPA starting from week 14.
UPA vs PBO comparison was calculated using Cochran-Mantel-Haenszel test adjusting for stratification factor of high-sensitivity CRP level; nominal *p*-values:***$p<0.001$, *$p<0.05$.
Patient's Global Assessment of Pain based on: "How much pain have you had because of your condition during the last week?"
BASFAI Q2 based on a question: "How would you describe the overall level of AS neck, back or hip pain you have had?"
BASFAI Q3 based on a question: "How would you describe the overall level of pain/swelling in joints other than neck, back or hips you have had?"
Patient's assessment of back pain based on a question:"What is the amount of bach pain that you experienced at any time during the last week?
Patient's assessment of nocturnal back pain based on a question: "What is amount of back pain at night that you experienced during the last week?

P147. Fig. 1. Proportion of patients achieving pain endpoints (≥30%/50%/70% reduction from baseline and MB) or MCID in PGA of pain) and mean change from baseline in PGA of pain, BASDAI Q2 and Q3, Back Pain, and Nocturnal Back Pain.

P148

ABOVE-LABEL DOSING AND COSTS IN ANKYLOSING SPONDYLITIS (AS) PATIENTS USING CERTOLIZUMAB PEGOL OR SECUKINUMAB IN US

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Introduction. Little is known about treatment patterns of newer biologics approved for AS, also known as radiographic axial spondyloarthritis. This analysis sought to describe among patients receiving certolizumab pegol (CZP; TNF inhibitor) and secukinumab (SEC; IL17 inhibitor) the above-label dosing frequency and pharmacy costs.
Methods. Retrospective analysis of US commercial claims was conducted (January-2012 through December-2017). Patients were included if newly initiating CZP or SEC (one-year baseline washout) and had ≥1 ICD9/10 AS claim in an inpatient setting or from a rheumatologist, or had ≥2 claims from any provider type in the one-year baseline. The one-year period after initiation of treatment ('follow-up') was used to assess outcomes. Above-label dosing was defined as ≥30 days of ≥125% of the label FDA recommended dose (CZP: 200mg/2 weeks; SEC: 150mg/4 weeks). Mean annual pharmacy costs were calculated in follow-up. Inverse probability of treatment weighting (IPTW) was performed to adjust for differences in baseline characteristics between the treatment cohorts, and included age, gender, biologic-naïve status, and claims for psoriasis, psoriatic arthritis, and Crohn's disease.
Results. A total of 298 CZP and 156 SEC patients were included in the analysis. Biologic exposure at baseline was present for 67% of CZP and 64% of SEC patients. IPTW analysis included 307 CZP and 133 SEC patients; subsequent results are for the IPTW cohort. Above-label dosing occurred among 7% of CZP and 49% of SEC patients. Above-label dosing of 200% of the first maintenance dose occurred in 1% of CZP and 27% of SEC patients. Mean pharmacy costs were $12,660 greater for SEC vs. CZP patients.
Conclusions. Above-label dosing was more common among AS patients receiving SEC than among patients receiving CZP. Pharmacy costs were higher for SEC rather than CZP, attributable to AS-related pharmacy costs. These differences were present even when adjusting for confounding through IPTW. The higher rates of above-label dosing of SEC should be considered as they may impact treatment costs, depending on the pricing in the specific healthcare setting.

Acknowledgements. Analysis funded by UCB Pharma.

P149

PHYSIOTHERAPY WORKS: RCT ON THE (COST-)EFFECTIVENESS OF A PHYSICAL THERAPIST-LED, WORK-ORIENTED INTERVENTION IN PEOPLE WITH AXIAL SPONDYLOARTHRITIS AND RHEUMATOID ARTHRITIS

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Introduction. People with axial Spondyloarthritis (axSpA) and Rheumatoid Arthritis (RA) regularly visit a physical therapist (PT) during their disease course. However, the impact of a PT-led intervention aimed at improving work ability in people with axSpA/RA is unknown.
Aim. To evaluate the (cost-) effectiveness of a PT-led, personalized, work-oriented intervention in working people with axSpA/RA and a decreased work ability compared to usual care.
Methods. In total 140 working (≥12 hours/week) people with axSpA/RA, and a moderate to poor work ability (Work Ability Index (WAI) ≤7), or short-term (<6 months) absenteeism due to axSpA/RA who are willing to visit and pay for PT (if necessary) and can communicate in Dutch, are randomized (1:1) to the PT-led intervention or usual care. Patients can register via various media channels and are recruited from regular patient flows at collaborating outpatient clinics or rheumatology departments at hospitals. Along the PT care, the intervention addresses work-related problems, delivered by trained PTs. Usual care will be coordinated by the patient's rheumatologist and will be similar to the treatment prior to study entry. The primary endpoint is change in WAI at 12 months. Participants will complete questionnaires on work-related, clinical and economic outcomes at baseline and after 3, 6 and 12 months.
Results. The intervention is developed based on evidence from literature and on focus group meetings with patients, PTs, rheumatology and/or occupational experts and research experts. The intervention will be pre-tested and finalized before the start of the inclusion in June 2021.
Conclusion. This study will be the first to provide insights in the (cost-)effectiveness of a PT-led work-oriented intervention in working people with axSpA/RA.

Acknowledgements. This study is funded by the Dutch Arthritis Society (ReumaNederland) and the Scientific College of Physical Therapy (WCF) of the Royal Dutch Society for Physical Therapy (KNGF). This study is registered in the Netherlands Trial Register under number NL9343.

P150

DO THE INDICATIONS FOR THE ADMINISTRATION OF INTERLEUKIN 17 OR TNF INHIBITORS IN SPONDYLOARTHRITIS DIFFER IN REAL CLINICAL PRACTICE? EXPERIENCE OF A SPECIALIZED RHEUMATOLOGY HOSPITAL

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Introduction. Of all the currently used biologics, for spondyloarthritis (SPA), primarily ankylosing spondylitis (AS) and psoriatic arthritis (PsA), tumor necrosis factor alpha (iTNF-α) inhibitors and interleukin 17 (iIL17) inhibitors are recommended. According to Russian clinical guidelines, they can equally be prescribed as the first biologics for both diseases.
Aim. To compare of the clinical manifestations of SpA patients who were initiated therapy with iIL17 or iTNF-α in one specialized rheumatology clinics.
Materials. A retrospective analysis of 83 patients with AS or PsA diagnoses (62.7% and 37.3%, respectively), who were observed at the Nasonova Research Institute of Rheumatology from December 2018 to December 2019, and who were initiated therapy with iIL17 or iTNF-α. The diagnosis of AS was established according to the modified New York criteria (1984), and PsA - according to the CASPAR criteria. iIL17 therapy was prescribed to 43 patients during this period (AS-23, PsA-20). For comparative analysis, 40 patients with AS (n=29) or PsA (n=11) were selected, who were prescribed iTNF-α therapy during the same period.
Results. The comparative characteristics of patients who were prescribed iIL17 or iTNF-α are shown in the Table I. In the iIL17 group, the ratio of AS and PsA was almost equal, while in the iTNF-α group, patients with AS prevailed almost 2.5 times (p>0.05). Also, the groups differed by gender – iIL17 was more often prescribed to men, and iTNF-α to women, in the frequency of psoriasis, previous iTNF-α therapy, and the frequency of parallel use of DMARD. Previous therapy of iTNF-α in the iIL17 group reached almost 42%, respectively, the remaining iIL17 was prescribed as the first biological drug. The clinical picture of patients who were prescribed iIL17 with the first drug did not differ from that of patients who already had previous experience of ineffective therapy of iTNF-α.

P150. Table I.

Parameter	iIL17, n=43	iTNF-α, n=40	*p*
AS	23	29	*p*>0,05
PsA	20	11	
Age, year (M± σ)	37,1±8,7	40,9±12,5	*p*>0,05
Gender: male	29	18	
female	14	22	***p*<0,05**
Duration of the disease, year (M± σ)	15,3±8,1	14,9±6,9	*p*>0,05
ESR, mm\h (Me [25;75])	16 [7;51]	19 [11;40,5]	*p*>0,05
C-RP, mg/l (Me [25;75])	9,3 [2,2;41,9]	7,9 [1,2;29,3]	*p*>0,05
HLA-B27	22 (51,2%)	26 (65,0%)	*p*>0,05
BASDAI	6,1±1,5	6,1±1,6	*p*>0,05
ASDAS	3,7±1,1	3,7±1,2	*p*>0,05
Arthritis	26 (60,5%)	17 (42,5%)	*p*>0,05
Entesitis	24 (55,8%)	20 (50,0%)	*p*>0,05
Psoriasis	**23 (53,5%)**	**10 (25,0%)**	***p*<0,05**
Dactylitis	6 (14,0%)	4 (10,0%)	*p*>0,05
Coxitis	23 (53,4%)	24 (60,0%)	*p*>0,05
iTNF-α therapy early	**18 (41,9%)**	**7 (17,5%)**	***p*<0,05**
3 iTNF-α	3 (16,7%)	0	*p*>0,05
2 iTNF-α	8 (44,4%)	1 (14,3%)	
1 iTNF-α	7 (38,9%)	6 (85,7%)	
Corticosteroids	12 (27,9%)	19 (47,5%)	*p*>0,05
DMARD	**21 (48,8%)**	**32 (80%)**	***p*<0,05**

Conclusions. Thus, in the Russian rheumatology practice, iIL17 can be used in clinical practice as the first biologics for SpA on a par with iTNF-α. The first results of the analysis of the initiation of iIL17 therapy showed that experts are equally likely to prescribe them for AS and PsA, preferably for male patients with previous experience of ineffective use of iTNF-α. In almost a third of PsA patients and a quarter of AS patients in this cohort, iIL17 was the first drug from the biologics.

P151

EFFECTIVENESS AND SAFETY OF COMBINED BIOLOGICAL THERAPY IN PATIENTS WITH SPONDYLOARTHRITIS

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Introduction. Biological therapy in combination is discouraged in the guidelines for the treatment of immune-mediated inflammatory diseases, attending to safety reasons. However, combined biological therapy have been proved a valid alternative in refractory patients with inflammatory bowel disease. Published experiences in Spondyloarthritis (SpA) are very scarce and the follow-up is limited. The aim of this study is to determine the effectiveness and safety of the association of biological drugs in patients with SpA.
Materials and Methods. Retrospective, cross-sectional and descriptive study. We included patients with SpA (meeting the ASAS criteria for axial SpA) who had received simultaneously at least two biological drugs with different therapeutic targets. Demographics, clinical and laboratory data and adverse events were collected from electronic clinical records. Remission and low activity criteria were considered according to cut-off descriptions in ASDAS CRP <1.3 and 2.1, respectively.
Results. We identified five patients with SpA receiving combined biological therapy (Table I). All patients showed high disease activity at the start of combination treatment and presented several disease domains involvement. The average of previous biologics drugs was 5.5±1.81. Four patients received an anti-TNF in combination with an anti-IL17 agent and one patient with concomitant Crohn disease was prescribed an anti-TNF combined with an anti-IL23 agent. The median treatment duration of the combined biological therapy was 9 months (IQR 5-68.5; range: 4-119). All patients achieved low disease activity or clinical remission at some point during follow-up, allowing for de-escalation of initial dose in some patients. No relevant adverse effects have been found clearly attributable to combination therapy. A 60-year-old patient with multiple comorbidities has stopped treatment due to aggravation of a previous liver cirrhosis.
Conclusions. Combined biological therapy could be an effective therapeutic alternative in patients with multidomain and refractory SpA. In our series, we provide acceptable safety data for follow-up periods that are longer than the majority of reported cases to date.

P151. Table I.

Characteristics	Patients (n= 5)
Male, n	3
Age at diagnosis (years) mean (IQR)	18 (8-28)
Ethnicity, n	5 Caucasian
Smoker, n	1
Diagnosis	3 Juvenile SpA-ERA, 2 PsA
Duration of disease (years) mean (IQR)	23.8 (13.5-35)
Domains involved, n	
Axial	5
Peripheral	5
Enthesis	5
Extra-articular	5
	2 psoriasis (1 with aortic insufficiency), 2 uveitis, 1 Crohn disease
HLA-B27 +, n	3
Previous biological or targeted therapy, n	
Anti-TNF	5 (5 etanercept, 4 adalimumab, 4 infliximab, 4 golimumab, 3 certolizumab)
Anti-IL17	5 (4 secukinumab, 1 ixekizumab)
Jakinibs	1 (tofacitinib)
Other	1 (apremilast)

Combined biological therapy	Treatment 1 + Treatment 2	Time of follow-up (months)	Actual state (ASDAS CRP)
(dose at start combination) and outcomes	1.GOL 100 mg/4w + SEC 150 mg/1w	119	Low activity (2)
	2.ETN 50 mg/1w + SEC 150 mg/2w	9	*Low activity (2.1)
	3.ETN 50 mg/1w + SEC 150 mg/4w;	18	Remission (1.3)
	4.GOL 100 mg/4w + SEC 150 mg/2w	6	Low activity (1.9)
	5.GOL 100 mg/3w + RIS 250 mg/12w	4	Remission (0.9)

ERA: enthesitis-related arthritis; ETN: etanercept; GOL: golimumab; IQR: interquartile range; PsA: psoriatic arthritis; RIS: risankizumab; RTX: rituximab SEC: secukinumab; SpA: spondyloarthritis; w: week. *At treatment interruption.

P152

THE TNF-NF-KB-DKK1 AXIS PROMOTED MINERALIZATION IN THE ENTHESIS OF ANKYLOSING SPONDYLITIS

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Introduction. To determine the serum DKK-1 level in ankylosing spondylitis (AS) patients and the underlying mechanism of tumor necrosis factor (TNF)-mediated DKK1 expression using human AS enthesis cells.
Methods. The sera from 103 patients with AS and 30 healthy controls (HCs) was obtained. The enthesis of facet joints were obtained from 4 AS patients and 5 controls. The serum level of DKK1 was measured using ELISA and compared between AS patients and controls. The impact of TNF on DKK1 expression in human primary spinal enthesis cells was evaluated using various molecular biology techniques.
Results. AS patients had higher serum DKK1 levels than did HC (917.4 [615.3–1310.0] pg/mL vs. 826.2 [670.3–927.8] pg/mL, p=0.044). TNF treatment induced DKK1 expression and mineralization in both control- and AS-enthesis cells. This TNF-induced mineralization was pronounced in AS-enthesis than that in controls. DKK1 overexpression promoted enthesis mineralization. Mechanically, TNF activated the phosphorylation of NF-κB protein and led the mRNA expression of DKK1. Moreover, a NF-κB inhibitor suppressed TNF-induced DKK1 expression in the enthesis.
Conclusion. TNF induced DKK1 expression in the enthesis through NF-κB activation. TNF-induced DKK1 expression may play a pathogenic role in the radiologic progression of ankylosing spondylitis.

P153

RECRUITMENT FOR A PHYSIOTHERAPY (COST-)EFFECTIVENESS STUDY IN PEOPLE WITH AXIAL SPONDYLOARTHRITIS DURING THE COVID-19 PANDEMIC

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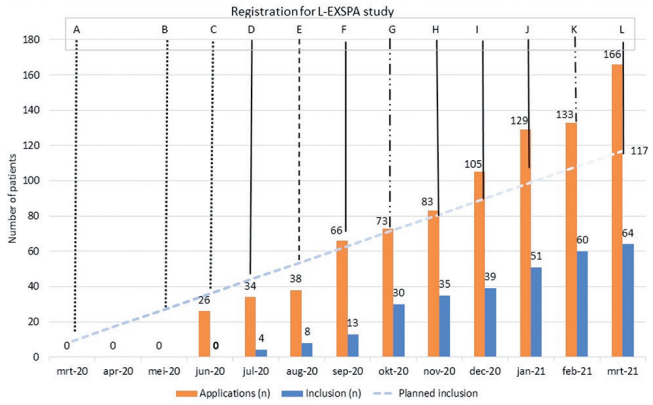
Introduction. Recruitment for an RCT comparing the cost-effectiveness of longstanding exercise therapy to usual care in people with axial spondyloartritis (axSpA) and severe disability began March 1, 2020. The planned inclusion rate was n=215 over 24 Months, but due to the COVID-19 pandemic, the study was temporarily halted from March 17 until June 18, 2020.
Aim. To describe the recruitment process in times of pandemic over a 12-month period.
Methods. People with axSpA and persistent, high disease activity, joint damage, disease or treatment complications, or comorbidities, resulting in complex limitations in activities and participation, may be included. Patients were recruited through rheumatology practices and the media, with registrations via an online registration form. All patients were called and screened for eligibility, and with definite inclusion after written informed consent. The recruitment activities for rheumatology practices were: posts in professional newsletters, information-leaflets and recruitment support from 3 centers by actively inviting potential candidates. For patients/public: information on website, Facebook- and newsletter-posts (>6000 registrations) of the Dutch Arthritis Society (DAS) and posts by regional patient associations.
Results. Fig. 1 shows the recruitment activities, the number of applications and the planned and actual inclusion over time. After restart of the study, a monthly inclusion rate between 2-8% of the total was established, resulting in an inclusion of n=64 (30%) at one year. Due to the pandemic, face-to-face recruitment actions were limited. Most patients registered after the DAS online recruitment activities and newsletter-post (Fig. 2).
Conclusion. Despite the COVID-19 pandemic, recruitment of patients with axSpA for an RCT on longstanding exercise therapy was linear, yet inclusion rates lagged, partly due to the COVID-19 pandemic and the limitation to recruit primarily online.

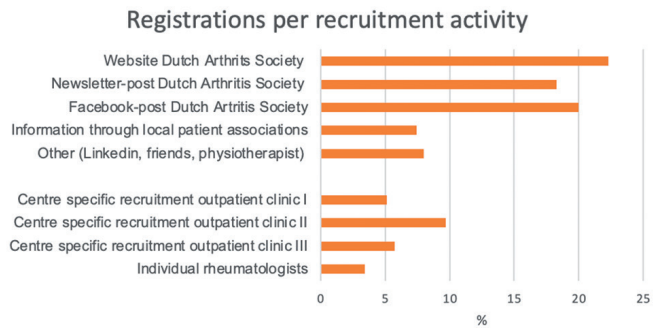
Acknowledgements. This study was financed by Ministry of Health, Welfare and Sport, ZonMw, Dutch Arthritis Society and the Royal Dutch Society for Physical Therapy (KNGF). Netherlands Trialregister: NL8238



Vertical lines:

A March17: Start COVID lock-down, stop study
B May11: re-opening of PT practices
C June 18: re-start study
D July 8: Facebook post Dutch Arthritis Society
E August: Newsletter-post Dutch Arthritis Society
F September 3: Facebook post local patient associations
G October: Centre Specific Recruitment outpatient Clinic I and II
H November 26 Facebook-post Dutch Arthritis Society
I December 10; Facebook-post Dutch Arthritis Society
J January 13: Facebook post Dutch Arthritis Society
K February: Centre Specific Recruitment Outpatient Clinic III
L March 15: Facebook post Dutch Arthritis Society

P153. Fig. 1.



P153. Fig. 2. Patient-registered recruitment activity, resulting in registration for study participation.

P154

NONSTEROIDAL ANTI-INFLAMMATORY DRUGS INTAKE LOAD AND RENAL FUNCTION IN PATIENTS WITH SPONDYLOARTHRITIS: AN 18-YEAR FOLLOW-UP STUDY

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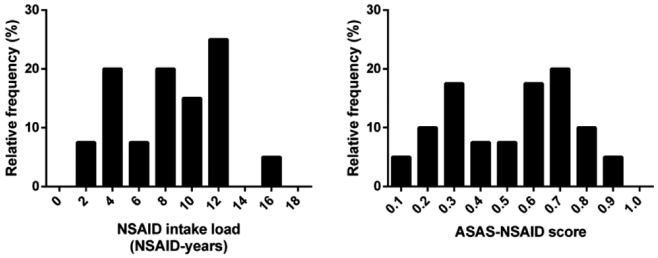
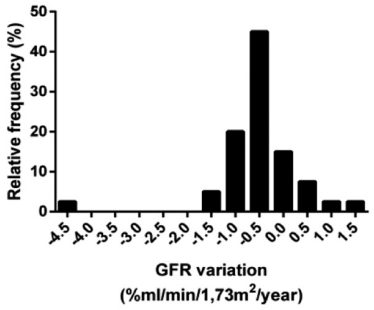
Background. Nonsteroidal anti-inflammatory drugs (NSAIDs) are widely used in the management of spondyloarthritis (SpA)and data regarding its renal safety in this population are scarce. The present study aimed to assess the decline in renal function of patients with SpA under longstanding NSAID intake.
Methods. Adult patients with SpA (ESSG criteria) in a continuous or on-demand prescription of NSAID, followed from 2002 to 2020, were included. ASAS-NSAIDscore (0-1) and NSAID intake load (expressed in NSAID-years, which is equivalent to one year using the full daily dose) were calculated. Glomerular filtration rate (GFR) by CKD-EPI at baseline and at last time under NSAID use were assessed.
Results. Forty patients, 72.5% male, were enrolled. The mean (±SD) age at baseline was 43 (±10) years. The mean ASAS-NSAID score was 52 (±24), and the mean NSAID load was 8.3 (±3.8) NSAID-years (Fig. 1). The mean GFR was 104 (±18) mL/min/1.73m^2 at baseline and 94 (±16) mL/min/1.73m^2 at the last visit under NSAID use. The mean reduction in GFR was 9.36 (±12) mL/min/1.73m^2 over 18 years (0.53% per year). Six patients (15%) had a reduction in GFR >1% per year and only one patient (2.5%) a>2% per year (Fig. 2). In a multivariate analysis, only age at baseline (p=0.01) and mean ASAS-NSAID score (p=0.01) were associated with the decline in GFR. In a linear regression model, each 0.1 increase in the mean ASAS-NSAID score was associated with a GFR decrease of 0.36 mL/min/1.73m^2 per year.
Conclusion. Longstanding NSAID intake was associated with a mild decline in GFR in this study (approximately half of the expected10ml/min/1.73m^2 per decade, estimated for healthy individuals >40 years).This renal safety profile of NSAIDs in SpA needs to be confirmed on more extensive sample studies, and therefore caution is still recommended when prescribing NSAID in high-risk patients.



P154. Fig. 1. NSAID intake load e ASAS-NSAID score.



P154. Fig. 2. GFR variation per year.

P155

PHARMACOLOGICAL TREATMENT OF ENTHESITIS - A SYSTEMATIC REVIEW ON THE EFFICACY OF THE AVAILABLE OPTIONS

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Introduction/Aim. Enthesitis is a recognized as a hallmark of spondyloarthrtis (SpA), including psoriatic arthritis (PsA) (1). However, it is an underestimated disease domain in both in clinical trials and clinical practice (2). This systematic literature review (SLR) assessed the efficacy of the available pharmacological options for enthesitis.
Methods. A systematic literature review (SLR) was conducted following the PRISMA reporting guidelines.
Studies were sourced from PubMed and Embase databases, using the following Medical Subject Headings (MeSH) terms: enthesitis, entheses, treatment, spondylarthritis, ankylosing spondylitis and psoriatic arthritis. The search was limited to articles in English published between January 2000 and July 2020. Two independent reviewers screened the titles and abstracts followed by a full-text review to assess papers regarding their eligibility.
Results. A total of 65 articles matched the research criteria. The time to included populations, the time to assessment of the primary endpoint and the chosen outcome for assessment of enthesitis was very heterogeneous across studies. There were no studies assessing the effect of non-steroidal anti-inflammatory drugs (NSAIDs), and glucocorticoids (oral and topical), or classic DMARDs. In PsA, all TNFis showed superiority in monotherapy against placebo (PBO). However, when combined with methotrexate (MTX), only some TNFi showed superiority against MTX monotherapy. In SpA, there is conflicting evidence regarding the efficacy of TNFi in enthesitis, with Golimumab showing the most favour-

able results. Regarding IL23i in PsA, Ustekinumab (UST) was superior to PBO, and to TNFis. Guselkumab (GUS) was superior to PBO only when given every 4 weeks. Regarding IL7i, Secukinumab (SEC) was superior to PBO, but only for dosing schemes. Ixekizumab (IXE) was superior to PBO for the treatment of enthesitis in TNF-naïve patients but not in bioirresponsive patients. Studies comparing SEC and IXE to ADA, showed no difference in efficacy for the treatment of enthesitis between IL17i and TNFi. There is no reported data on IL17i for enthesitis in SpA. In PsA, Tofacitinib was superior to PBO in naïve patients, and Tofacitinib 10mg (but not 5mg) was superior to PBO in bioexperienced patients. Apresemilast 30mg showed superiority to PBO for enthesitis. All finding are summarized on Table.

Conclusion. This SLR emphasizes the current heterogeneity in the assessment and report of enthesitis. There is still an unmet need for further studies to improve our understanding about enthesopathy, seeking a better detection and in particular a better management.

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P155. Table I. Findings of the systematic literature review on treatment options for enthesitis.

Disease	Tested drug vs Reference	Superiority of the treatment arm against reference arm (p<0.05)	Reference
PsA	TNFi vs PBO	YES	NCT00051623 (IFX) NCT00265096 (GOL) NCT01087788 (CZP)
	TNFi+MTX vs PBO+MTX (PBO+ETN one study) vs PBO+MTX	NO	NCT00367237 (IFX) NCT02065713 (GOL) NCT02376790 (ETN)
	UST vs PBO	YES	NCT01009086 NCT01077362
	UST vs TNFi	YES	EudraCT 2017-003799-29 β
	GUS q4w vs PBO GUS q8w vs PBO	YES NO	NCT03162796 NCT03158285
	SEC (pooled dose) vs PBO	YES	NCT01392326 NCT01752634
	SEC 300mg vs PBO SEC 150mg vs PBO	YES NO	NCT01989468
	SEC 300mg with loading vs PBO SEC 150mg with loading vs PBO SEC 150mg no loading vs PBO	YES YES NO	NCT02404350
	IXE vs PBO ADA vs PBO	YES NO PsA Bionaive	NCT01695239
	IXE vs PBO	NO PsA Bioexperienced	NCT02349295
	IL17i (SEC/ ADA) vs TNFi	NO	NCT02745080 (SEC) NCT03151551 (ADA) β
	APR 20mg vs PBO APR 30mg vs PBO	NO YES	NCT01172938
	TOF 5mg vs PBO TOF 10mg vs PBO ADA 40mg vs PBO	NO YES NO	NCT01877668 (TNFi-naive)
	TOF vs PBO	NO	NCT01882439 (TNFi-failure)
SpA	ETN vs SSZ	YES (imaging)/ NO (clinical) axSpA	NCT00844142
	ETN vs PBO	YES for nr-axSpA	NCT01258738
	ADA vs PBO	YES for r-axSpA NO for nr-axSpA YES for perSpA	NCT00195819 NCT00939003 NCT01064856
	GOL IV vs PBO	YES for r-axSpA	NCT02186873
	GOL 100mg vs PBO GOL 50mg vs PBO	YES NO For r-axSpA	NCT00265083
	GOL vs PBO	YES nr-axSpA	NCT01453725

β-Open-label; PsA: Psoriatic arthritis; r-axSpA: Radiologic axial spondylarthritis; nr-axialSpA: non radiological axial spondylarthritis; PBO: Placebo; TNFi: Tumor necrosis factor inhibitors; ETN: Etanercept; IFX: Infliximab; ADA: Adalimumab; GOL: Golimumab; UST: Ustekinumab; CZP: Certolizmab; GUS: Guselkumab; SEC: Secukinumab; IXE: Ixekizumab; APR: Apremilast; TOF: Tofacitinib; MTX - Methotrexate.

P156

TREATMENT WITH TOFACITINIB IN REFRACTORY PSORIATIC ARTHRITIS. MULTICENTERSTUDY OF 87 PATIENTS IN CLINICAL PRACTICE

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Background. Tofacitinib (TOFA) is the first inhibitor of JAK kinases with approval for the treatment of psoriatic arthritis (PsA) in Europe (July 2018) TOFA has shown efficacy in refractary patients to anti-TNF.

Objectives. To assess efficacy and safety of TOFA in clinical practice. To compare the profile of clinical practice patients with clinical trial.

Methods. Study of 87 patients of clinical practice with PsA treated with TOFA. Results are expressed as percentage, mean±SD or median [IRQ].

Results. 87 patients (28♀/59♂), mean age 52.8±11.4 years (Table I). Pattern joint involvement was: peripheral (n=60), axial (1) and mixed (26). Presented enthesitis (49.4%), nail involvement (30.2%) and dactylitis (31%).

Prior TOFA, most patients (80%) received oral prednisone, synthetic immunosuppressants (mean 2.26±0.86) and biological therapy (TB) (3.6±1.9). TB was etanercept (58), adalimumab (54), infliximab (31), golimumab (37), certolizumab (30), secukinumab (54), ustekinumab (39) and ixekizumab (2). Apremilast was used in 17.

After a mean follow-up of 12.3±9.3 years after the PsA diagnosis, TOFA was started (5 mg/12 h), 50.5% associated prednisone. In 48 (55.2%) TOFA was started in combined therapy: methotrexate (30) and leflunomide (15); in the remaining 39, monotherapy was prescribed.

Patients of clinical practice compared with clinical trial have a longer duration of PsA, functional disability (HAQ) and received a higher proportion of corticosteroids and TB (anti-TNF and non-anti-TNF) (Table I) After a median follow-up of 6.5±5.6 months, patients improved in activity indexes (PASI, DAS28, DAPSA) and laboratory test (Table II). Minor side effects were reported in 21 patients (gastrointestinal symptoms), TOFA was discontinued in 29 due to inefficiency.

Conclusion. In this study, patients of clinical practice had a longer evolution and received a greater number of TB than those of clinical trial. TOFA as in clinical trial seems effective, rapid and relatively safe in clinical practice for refractory PsA.

P156. Table I. Baseline characteristics.

	CLINICAL TRIAL *Gladman* N=131	CLINICAL PRACTICE N=87
Age, years (mean±SD)	49.5±12.3	52.8 ± 11.4
Sex, n (%)	67M/64F (51/49)	59M/28F (68/32.2)
Duration PsA, year (mean±SD)	9.6±7.6	12,3±9,3
HAQ-DI	1.3±0.7	1.4±0.7 (n=26)
Swollen joint count, mean±SD	12.1±10.6	5.7±5.8
Painful joint count, mean±SD	20.5±13.0	8.0±6.6
Elevated CRP, n (%)	85 (65)	55 (63.2)
PASI score, median [IQR]	7.6 [0.6–32.2]	9.0 [4.2-15]
oral glucocorticoid use, n (%)	37(28)	44(50.5)
Concomitant synthetic DMARD, n (%) - Methotrexate - Leflunomide - Sulfasalazine - Others	 98 (75) 12 (9) 21 (16) 2 (2)	 30 (34.4) 15 (17.2) 6 (6.9)
N. of previous TNF inhibitors, mean±SD	1.7±1.0	2.4±1.4
Previous use of other biological no anti-TNF, n (%)	11 (8)	68 (78.2)

P156. Table II. Evolution, improvement on 1nd, 6th and 12th month.

	Baseline n=87	1st month n=77	6th month n=52	12th month n=20
Nail involvement, n (%)	17 (19.5)			
Improvement, n (%)		5 (35.7)	6 (60)	5 (83.3)
Enthesitis, n (%)	28 (32.2)			
Improvement, n (%)		8 (47.1)	10 (58.8)	3 (50)
Dactylitis, n (%)	16 (18.4)			
Improvement, n (%)		9 (69.2)	6 (85.7)	0 (0)
CRP mg/dl, median [IQR]	1.9 [0.3-5]	0.5 [0.1-2.2]	0.5 [0.3-1.2]	0.4 [0.4-3.7]
p (vs baseline)		**0.004**	**0.005**	0.66
DAS28, median [IQR]	4.8 [4.1-5.40	3.7 [2.8-4.6]	2.8 [2.2-3.8]	2.9 [2.2-3.7]
p (vs baseline)		**<0.001**	**<0.001**	**<0.001**
DAPSA, median [IQR]	28 [18.41-34.05]	15.5 [10.1-25.7]	9 [6.07-15]	4.3 [2.4-8]
p (vs baseline)		**<0.001**	**<0.001**	**<0.001**
PASI, median [IQR]	5 [1-14]	1.4 [0-7]	0 [0-4]	0.05 [0-2.7]
p (vs baseline)		0.192	0.105	0.300

P157

CLINICAL EVALUATION OF PATIENTS WITH AXIAL SPONDYLITIS UNDER TREATMENT WITH NSAIDS AND PHYSIOTHERAPY IN KINSHASA, DEMOCRATIC REPUBLIC OF THE CONGO

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Introduction. Data on clinical evaluation of patients suffered from axial Spondyloarthritis are not available in Kinshasa, Democratic Republic of The Congo. The aim of this study was to evaluate patients with axial spondyloarthritis under treatment with NSAIDs and physiotherapy.
Materials and Methods. This is a prospective study conducted in the department of internal medicine, rheumatology unit in outpatients for 1 year, from 1st November 2019 till 31st October 2020. A clinical diagnosis of SpA was made and several classification criteria were applied afterwards. Radiographic lesions in the sacroiliac joint were scored with the modified New York criteria. ASDAS-CRP, BASDAI and BASFI were evaluated. All patients included had received treatment with NSAIDs at effective doses combined with appropriate physiotherapy and exercise for one month. The rest of treatment was based on symptoms with taking NSAIDs on demand. The primary end point was BASDAI, BASFI, ASDAS-CRP. The secondary endpoint was the response criteria assessed by ASDAS 20.
Results. 232 patients were included (140 males). The average age at disease onset was 41.3±12.8 years. Mean BASDAI and BASFI in axSpA were 42.7/100 and 46.4/100, respectively. Mean VAS and ASADAS-CRP were 6.4 and 2.5 respectively. At the endpoint, mean BASDAI, BASFI and ASDAS-CRP were 23.2/100, 15.5/100 and 1.3 respectively. ASDAS 20 was achieved in 77.6% (180 patients).
Discussion. NSAIDs and physiotherapy were relevant to improve many patients with axial spondyloarthritis. Good tolerance and regular monitoring determined a favorable therapeutic outcome.
Conclusions.The basis treatment seems to be sufficient for the patients followed for axial spondyloarthritis in Kinshasa, DR Congo.

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P158

EFFICACY OF GUSELKUMAB ACROSS BASDAI COMPONENTS IN TREATING AXIAL-RELATED SYMPTOMS OF PSORIATIC ARTHRITIS: RESULTS FROM TWO PHASE-3, RANDOMIZED, PLACEBO-CONTROLLED STUDIES

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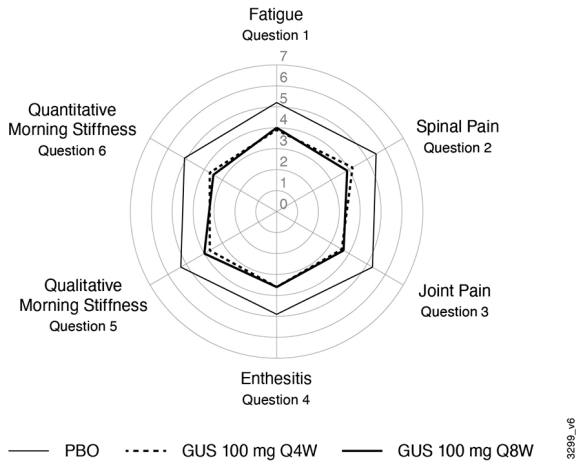
Introduction/Aim. Guselkumab (GUS), anti-IL-23p19-subunit monoclonal antibody, improved psoriatic arthritis (PsA) symptoms (axial manifestation) in DISCOVER-1&2 post-hoc analyses. We evaluated GUS efficacy across Bath Ankylosing Spondylitis Disease Activity Index (BASDAI) components in improving axial manifestation of active PsA patients from phase-3, randomized, placebo-controlled studies.
Methods. DISCOVER-1&2 randomized patients to subcutaneous injections of GUS 100mg every-4-weeks (Q4W) or at Week0, 4, and Q8W, or placebo. These analyses included patients having axial symptoms and sacroiliitis (investigator-confirmed) and pooled data from DISCOVER-1&2. BASDAI scores were assessed at Weeks 0, 8, 16, 24, and 52. Mean BASDAI component scores using observed data (reported by treatment group) and %patients achieving ≥50% improvement in BASDAI (BASDAI50) were determined. Total BASDAI scores with missing components were set to missing. Nonresponders were patients with missing data or meeting treatment failure criteria.
Results. 312 patients were included (103 GUS-Q4W, 91 GUS-Q8W, 118 placebo); mean total BASDAI scores at Week0 were 6.4, 6.5, and 6.6, respectively. Demographics and mean baseline BASDAI component scores (fatigue/spinal pain/joint pain/enthesitis/qualitative morning stiffness/quantitative morning stiffness) were similar across treatment groups (Table I). Mean BASDAI scores (all components) decreased through Week 24 in GUS-treated patients vs placebo starting at Week 8; improvements were maintained at Week 52. At Week 24, BASDAI50 responses were higher in GUS-Q4W (38%) and GUS-Q8W (40%) vs placebo (19%) (Fig. 1). At Week 52, mean BASDAI scores and BASDAI50 responses for placebo patients who crossed over to GUS-Q4W at Week24 and those randomized to GUS were similar.
Conclusions. Among PsA patients with axial symptoms and sacroiliitis (via investigator-confirmed imaging) in the DISCOVER-1&2 trials, GUS treatment resulted in lower mean scores for all six BASDAI components vs placebo as early as Week8 and through Week24, with mean scores maintained at Week52.

P158. Table I. Baseline demographic and disease characteristics for patients who were identified by physicians as having symptoms consistent with spondylitis and had sacroiliitis confirmed via prior radiograph/MRI or screening radiograph.

	GUS Q4W	GUS Q8W	Placebo
Patients, n	103	91	118
Male, n (%)	68 (66)	54 (59)	69 (59)
Age, years	44.9 ± 11.8	45.0 ± 10.7	45.3 ± 11.0
BASDAI			
Patients, n	95	84	110
Score	6.4 ± 1.7	6.5 ± 1.8	6.6 ± 1.5
BASDAI Components			
Fatigue	6.4 ± 2.0	6.7 ± 1.9	6.5 ± 1.9
Spinal pain	6.6 ± 2.1	6.5 ± 2.3	6.7 ± 2.0
Joint pain	6.3 ± 1.9	6.5 ± 2.2	6.8 ± 1.7
Enthesitis	6.3 ± 2.1	6.4 ± 2.2	6.3 ± 2.2
Qualitative morning stiffness	6.8 ± 2.1	6.7 ± 2.5	7.0 ± 2.0
Quantitative morning stiffness	6.2 ± 2.9	5.7 ± 2.9	6.1 ± 2.8

Data are mean ± standard deviation unless otherwise noted.
BASDAI: Bath Ankylosing Spondylitis Disease Activity Index; GUS: guselkumab; MRI: magnetic resonance imaging; Q4W: every 4 weeks; Q8W: every 8 weeks.



BASDAI: Bath Ankylosing Spondylitis Disease Activity Index; GUS: guselkumab; PBO: placebo

P158. Fig. 1. Mean scores of BASDAI components at week 24, DISCOVER-1 and DISCOVER-2.

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EFFECTIVENESS OF A BIOLOGIC TAPERING PROTOCOL FOR AXIAL SPONDYLOARTHRITIS AND PSORIATIC ARTHRITIS (TaPSpA)

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Aim. To investigate in psoriatic arthritis (PsA) and axial spondyloarthritis (axSpA) patients in remission, submitted to a progressive biologic tapering protocol, how many maintain remission by 1 year, the proportion of successful dose reduction, disease flare rate, elapsed time until flare and outcome after flare**.**
Materials and Methods. Patients diagnosed with PsA and SpA, treated with TNF inhibitors (TNFi), in sustained DAS28 remission (DAS28<2.6, if predominantly peripheral disease) or ASDAS low disease activity (LDA, ASDAS<2.1, if predominantly axial disease) for over 12 months, were asked to increase the regular interval (RI) between TNFi administration by 50% (1.5xRI). If remission was maintained after 6 months, dosing interval was increased again to twice the regular interval (2xRI). Disease activity and patient-reported outcomes were assessed every 3 months and function, EQ-5D, peripheral joint ultrasound, radiographs, serum drug levels and anti-drug antibodies were assessed at baseline and 1 year. In case of disease flare (defined as DAS28>2.6/ ASDAS>2.1), the previous treatment frequency was reintroduced.

P159. Table I. Baseline demographic and disease characteristics of the study population.

Characteristics	**axial spondyloarthritis (n=15)**	Psoriatic arthritis (n=13)
Age, years, mean (SD)	50.8 (12.2)	55.1 (8.4)
Male gender, n (%)	12 (80.0)	13 (100)
Predominant axial involvement, n (%)	15 (100)	3 (23.1)
Enthesitis, n (%)	8 (53.3)	10 (76.9)
Disease activity, mean (SD)		
Axial (ASDAS)	1.23 (0.4)	0.93 (.4)
Peripheral (DAS28)	-	1.20 (0.5)
Physical function, median (IQR)		
BASFI	1 (3.54)	0.35 (0.60)
mHAQ	-	0 (0)

Results. 17 axSpA and 15 PsA patients completed baseline assessment. 4 were excluded before they started tapering (2 clinical flares, 1 had subclinical Doppler+ synovitis on ultrasound and 1 was pregnant). Mean follow-up (±SD) after tapering was 17.7(±6.0) months. 1 year after tapering, 11 patients were taking TNFi at 2xRI (47.8%), 5 at 1.5xRI (21.7%) and 7 at 1xRI (30.4%). 13 patients had a clinical flare (46.4%) after 8.1(±5.4) months, 8 when taking 1.5xRI (61.5%) and 5 on 2xRI (38.5%). After flare, 4 patients recovered remission/LDA after increasing treatment frequency to 1.5xRI (36.4%) or to 1xRI in 6 patients (54.6%) and 1 had to switch TNFi (9.1%).
Conclusion. Most patients on sustained remission/LDA tolerated tapering TNFi. In the event of flare, increasing again treatment frequency allowed reentering into remission/LDA in all but one patient.

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PREDICTIVE FACTORS OF SECUKINUMAB PERSISTENCE IN PATIENTS WITH PSORIATIC ARTHRITIS - DATA FROM THE RHEUMATIC DISEASES PORTUGUESE REGISTRY (REUMA.PT)

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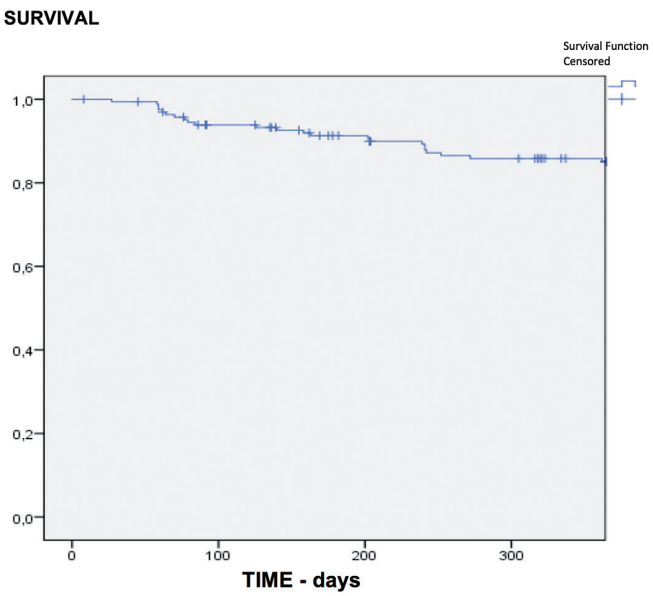
Introduction. Psoriatic arthritis (PsA) affects 0.31% of the Portuguese adult population. Despite the growing number of patients treated with secukinumab, real-world data about its persistence is still sparse. The purpose of this study is to identify predictors of secukinumab 1-year persistence in PsA patients in Portugal.
Methods. PROSAS is a national, multicentric, observational, longitudinal cohort study (data from the registry of rheumatic diseases in Portugal – Reuma.pt). Includes all adult patients with diagnosis of PsA registered in the Reuma.pt that received at least one injection of secukinumab at any time between January 2017 and January 2021. After univariate analysis, Cox regression analyses were performed to identify predictors of non-persistence in the first year of follow-up with variables that we found to be associated in univariate analyses and described in literature with significant association. This study was performed in accordance with the Declaration of Helsinki.
Results. We included 166 PsA patients (54.8% women) with a mean age of 50.8 (SD=11.7) years old at first injection of secukinumab. Persistence in secukinumab at 1-year was 91% (Fig. 1) and had an association with less switches, fewer articular surgeries or synoviectomies, low disease activity at baseline (DAS28 score) and prednisolone equivalent dose at baseline (higher doses associated with less persistence). No other associations were found. After adjustment for gender, number of surgeries/synoviectomies, low disease activity and prednisolone equivalent dose at baseline, the number of switches (p=0.038) and presence of comorbidities (p=0.014) were the main predictors of non-persistence (Table I).
Conclusions. This study highlights the importance of early initiation of secukinumab therapy and comorbidity control for optimal treatment persistence.

Acknowledgements. The authors would like to thank all contributing authors: Garcia S., Nero P., Pestana J., Martins-Martinho J, Silva A.B., Rodrigues J., Sequeira G., Costa E., Santos F.C., Furtado C., Santos B., Raposo A., Saraiva L., Samões B., Barcelos F., and Santos M.J.
This study was supported by an unrestricted grant from Novartis.



P160. Fig. 1. Persistence in secukinumab at 1-year Kaplan-Meyer Curve.

P160. Table I. Multivariate analyses: Cox regression for predictive factors for non-persistence in psoriatic arthritis.

Determinants	Unstandardized Coefficients B	Standardized Coefficients Beta	95.0% CI	*p*-value
Gender	0.119	1.127	0.341 – 3.726	NS
Number of surgeries/synoviectomies	0.727	2.069	0.832 – 5.142	NS
Number of switches	0.324	1.383	1.018 – 1.878	0.038
Low disease activity (DAS28)	13.366	638.468	0.00 – 3214.131	NS
Prednisolone equivalent dose	-0.029	0.972	0.856 – 1.103	NS
Comorbidities	2.082	8.020	1.784 – 42.299	0.014

CI: Confidence interval; NS: non-significant.

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LONG-TERM EXPERIENCE OF BIOLOGICAL THERAPY IN DIFFERENT KINDS OF JUVENILE SPONDYLOARTHRITIS

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Introduction. Juvenile Spondyloarthritis (JSA) is a very heterogeneous group, presenting difficulties for diagnosis and therapy.
Aim. To identify the features of disease course under biological therapy (BT) in patients (pts) with definite juvenile ankylosing spondylitis (JAS) and other HLA B27-associated forms of juvenile idiopathic arthritis (HLAB27JIA) in real clinical practice of single center.
Materials and Methods. A prospective cohort study of pts with JSA who received BT in our clinic from 2004 to 2020. All pts divided into 2 groups: JAS, fulfilled to Modified NY criteria (1984) and pts with HLAB27JIA.
Results. 109 pts (92 males, 17 females, 84/16%, HLAB27 positive 84%) matched as JAS and 177 pts (105 males, 66 females, 61/29%; HLAB27 100%) identified as HLAB27JIA. Age at disease onset and at the start of BT were different in the groups, JAS pts were older (Me11.63; range 3,5-16.9 and Me15.9; range 10.1-18 years) than HLAB27JIA pts (Me9.4; range 0.5-17.5 and Me 13.2; range 2.1-18 years) respectively. Uveitis is present in 8(7%) JAS pts and in 35(20%) in HLA B27JIA, including 4 and 6 cases of uveitis de novo under etanercept respectively. Most JAS pts received TNF-inhibitors as a 1st line of BT, 129 courses in total (etanercept 48, adalimumab 47, infliximab 19, golimumab 15). Just 15(14%) pts needed to switch to 2nd-4th lines of BT. There were 35 cases of withdrawals: 11 due to inefficacy, 13 -non-medical reasons, 2 -remissions, 9 –non-serious adverse events (AE), 2 infusion reactions, 1 psoriasis de novo (infliximab). In HLAB-27JIA spectrum of BT was various: etanercept 97, adalimumab 74, infliximab 27, golimumab 11, abatacept 5, tocilizumab 4, certolizumab 1. 41(24%) pts needed to change BT. There were 47 cases of withdrawals: 29 inefficacy, 6 non-medical reasons, 1 remissions, 11 AE, 3 infusion reactions (infliximab), 1 local reaction and 1 tuberculosis (adalimumab).
Conclusions. Our data suggested that uveitis is much more common in HLA B27JIA than in JAS (i.a. axial spondylitis), but with similar cases of uveitis de novo under BT. Our experience demonstrated the best rate of drug survival for JAS compare to HLA B27JIA pts.

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ADALIMUMAB TREATMENT IN A PATIENT WITH PASS SYNDROME

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Introduction. Spondyloarthritis has been linked to diverse cutaneous manifestations. PASS syndrome is a rare chronic autoinflammatory condition characterized by acne, pyoderma gangrenosum, suppurative hidradenitis and axial spondyloarthritis. PASS syndrome belongs to the spectrum of autoinflammatory diseases, which include PAPA, PASH, PAPASH and PsAPASH syndromes. PASS syndrome is distinct from other PAPA-spectrum syndromes because it involves affection of axial joints. We present adalimumab treatment in a patient with PASS syndrome.
Methods. A 29-year-old Caucasian male with history of acne conglobate, suppurative hidradenitis, oligoarhtritis, family history of pyoderma gangrenosum and similar symptoms admitted to a hospital complaining chronic inflammatory back pain. Previous attempts to treat skin lesions with antibiotics and glucocorticoids failed. NSAIDs were ineffective for back pain. MRI revealed chronic sacroiliitis and active spondylitis in thoracic and lumbar spines. CT revealed chronic asymptomatic erosive arthritis of manubriosternal joint. HLA-B27 was negative. The diagnosis of PASS-syndrome was made.
Results. After treatment with adalimumab 40 mg back pain and arthritis resolved but acne and suppurative hidradenitis persisted. The dose of adalimumab has been increased to 80 mg with improvement of skin symptoms.
Conclusions. Definitive therapeutic options have not yet been established regarding PAPA-spectrum disorders. Adalimumab treatment with 80 mg per 2 weeks dose demonstrate resolution of joint inflammation and significant improvement of suppurative hidradenitis and acne. A treatment with adalimumab is an effective way to control autoinflammatory process in a patient with PASS syndrome.

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MULTIDISCIPLINARY WORKING IN THE MANAGEMENT OF AXIAL AND PERIPHERAL SPONDYLOARTHRITIS

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Background/Aims. Multidisciplinary (MD) care is essential in the management of patients with spondyloarthritis (SpA)(1), but evidence supporting its effectiveness and benefits in SpA is scarce. The objectives of this review were to describe the characteristics, effectiveness and feasibility of MD working compared to uni-disciplinary approach in studies of patients with SpA.
Methods. A literature review was conducted according to the PICO framework. We included studies on patients with axial and/or peripheral SpA, and we assessed several outcomes such as diagnosis, treatment, feasibility, disease and patient-related outcomes (Table I).
Results. Fifteen articles met the review's eligibility criteria, including 13 observational studies and two randomised controlled trials. In total 4,312 patients were analysed, including patients with psoriatic arthritis, enteropathic SpA, ankylosing spondylitis, and SpA with anterior uveitis. Most of the studies included a combined clinic encompassing a rheumatologist and another specialist, most commonly a dermatologist or a gastroenterologist, working in tandem according to predefined referral criteria and treatment algorithms. The main outcomes assessed in studies on MD working in SpA, matched with their outcome measures are depicted in Table I. MD working was reported to lead to better outcomes in all studies, including: better identification and diagnosis of the disease; earlier and more comprehensive treatment approach; and better outcomes for patients in terms of disease activity, physical function, quality of life and patient satisfaction. However, these results are mostly derived from studies with design issues and without a uni-disciplinary care comparator arm.
Conclusions. Despite the lack of strong and reliable evidence to support its benefits compared to standard care, MD working is an essential part of the care of patients with SpA. Further studies and initiatives should be developed so that the challenges and limits of MD care can be improved upon.

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P164

THE EXPERIENCE OF A RHEUMATOLOGIST WORK WITH "ASPINE" TECHNOLOGY FOR MONITORING THE CONDITION OF PATIENTS WITH AXIAL SPONDYLOARTHRITIS IN THE COVID-19 PANDEMIC

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Introduction. During the pandemic of the new coronavirus infection COVID-19, the work in «ASpine» technology in real clinical practice was most relevant for both the rheumatologist and for patients (pts) with axial spondyloarthritis (axSpA).
Aim. To analyze the work of a rheumatologist in «ASpine» technology for pts with axSpA during the COVID-19 pandemic.
Materials and Methods. The «ASpine» consists of two parts: a mobile app for pts and a website for rheumatologists. In the mobile app, pts fill indexes BASDAI, BASFI, ASDAS CRP, import their laboratory, instrumental tests, note which drugs they take, and watch videos of daily physical therapy sessions. The

P163. Table I. Outcomes and outcome measures evaluated in studies of multidisciplinary working in spondyloarthritis.

Outcomes		Outcome measures
Diagnosis	Early diagnosis	Assessment of SpondyloArthritis Society (ASAS) criteria; New York criteria The Classification Criteria for Psoriatic Arthritis (CASPAR); Moll and Wright criteria Rheumatologist's / dermatologist's (clinical) judgment Not defined ("standard diagnostic criteria for inflammatory bowel diseases and rheumatic diseases")
	Diagnosis delay	The total lag time from joint symptom onset to the first rheumatologic assessment Diagnostic delay: the time interval between the onset of the symptoms and the correct diagnosis being made Physician-related diagnostic delay: the time interval between the initial visit to a physician and the time of diagnosis
	Reclassification of diagnosis	Number of patients, n (%)
Disease related	Disease activity	Musculoskeletal: – The Bath Ankylosing Spondylitis Disease Activity Index (BASDAI) – The Ankylosing Spondylitis Disease Activity Score-C-reactive protein (ASDAS-CRP) – Disease Activity in PSoriatic Arthritis (DAPSA) Gastroenterology: – Crohn's disease activity index (CDAI) – the partial Mayo (pMAYO) Psoriasis: – Psoriasis Area Severity Index (PASI)
	Physical function	Bath AS Metrology Index (BASMI) Bath AS Functional Index (BASFI) Bath Ankylosing Spondylitis Patient Global Score (BAS-G) Health Assessment Questionnaire (HAQ)
	Comorbidities	Prevalence of diabetes, hypertension, hyperlipidaemia, and current/past smoking status
	Complications during FU/ adverse events	Prevalence of infection and adverse medication effects (i.e. elevated liver function test, headache).
Treatment	Therapeutic adjustment	Number of patients, n (%) having had their treatment changed
Patient reported outcomes	Quality of life	Inflammatory Bowel Disease Questionnaire (IBDQ) Short Form (SF36) Dermatology Life Quality Index (DLQI) Psoriatic Arthritis Impact of Disease (PsAID-12)
	Global wellness	HAQ SF36 Patient Global Assessment (PGA)
	Patient global assessment	PGA
	Activity limitations and participation restrictions	The Canadian Occupational Performance Measure (COPM)
	Patient satisfaction	Satisfaction questionnaire (developed by the multidisciplinary team)
Feasibility/ costs	Health service utilisation	questionnaire developed by the Stanford University School of Medicine with four indicators (outpatient visits, emergency visits, hospitalizations, and hospitalization days).

doctor has an opportunity to observe the dynamics of his pts disease activity online. Also, the patient and the doctor have the opportunity to communicate in the form of text messages and file sharing. In this study, we present an example of the work of 1 rheumatologist during the pandemic from March to June 2020.

Results. In total, the rheumatologist during the entire period of work with the «ASpine» technology remotely observed 71 pts with axSpA, of which 47 (66.1%) patients were assigned during the pandemic from March to June 2020. The average age of all pts attached to the doctor was 37.4 (9.5), the distribution of men (42.3%) and women (57.7%) was almost equal ($p<0.05$), 47 (66.1%) patients were positive for HLA B27. In 29 (40.8%) a high activity of axSpA was recorded. Notifications about messages from pts came daily during a pandemic in an amount from 1 to 16. Examination and response by a doctor to 1 treatment took, on average, 5 minutes, that is, no more than 30 minutes were allocated daily for replies from pts at any convenient working time of a specialist.

Conclusions. «Aspine» technology allows a rheumatologist to remotely monitor the health status of a large number of pts in a short time period.

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DISEASE ACTIVITY, FUNCTIONAL IMPAIRMENT AND WORK DISABILITY IN AN ANKYLOSING SPONDYLITIS COHORT

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Introduction. The main aim of our study was to identify the factors contributing to work disability in Ankylosing Spondylitis (AS) patients.

Materials and Methods. We conducted a prospective observational study on working-age patients fulfilling the modified New York diagnosis criteria for AS.

Results. The present research included 114 active-age patients with AS hospitalized in the rheumatology department between November 2019 and June 2020. The prevalence of work disability among subjects was 60.5%. We identified statistically significant relationships between work disability and male gender ($p=0.013$), respiratory dysfunction ($p=0.001$) and anxiety or depression ($p=0.046$), but not HLA-B*27, uveitis, fatigue, use of walking aids, treatment, BMI, and disease activity. Moreover, we found notable associations between work disability and total BASFI scores ($p<0.001$), decreased mobility in the cervical spine ($p<0.001$) and the lumbar spine ($p=0.001$), as well as higher difficulty performing physically demanding actions ($p=0.006$) and/or daily activities ($p=0.029$), climbing stairs ($p=0.016$), reaching up ($p=0.001$), and standing up without support ($p=0.007$). Cardiovascular, metabolic and renal comorbidities or disease-related complications were not significantly connected to work disability in our study population. Professionally active patients did not demonstrate lower disease activity and were not less likely to be re-hospitalized at 6 months compared with participants with work disability. Additionally, the cost of symptomatic treatment and paraclinical investigations per day of hospitalization did not differ between these two subgroups.

Conclusions. Work disability continues to be a major issue in AS. Our results indicate that functional hindrance may be the main contributor to work disability in these cases. HLA*B27 positivity and most comorbidities or complications did not exhibit significant relationships with work disability in our study cohort. Nevertheless, respiratory dysfunction and psychiatric comorbid conditions were significantly correlated with AS patients' early retirement from the workforce.

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BODY MASS INDEX MAY BE LINKED TO FUNCTIONAL IMPAIRMENT IN MEN WITH ANKYLOSING SPONDYLITIS

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Introduction. High body mass index (BMI) has previously been linked to poor outcomes in Ankylosing Spondylitis (AS). The main objective of the present research was to investigate the relationship between disease activity, functional hindrance and BMI in persons with AS.
Materials and Methods. We conducted a prospective observational study on adult patients fulfilling the modified New York diagnosis criteria for AS. We performed the statistical analysis of the resulting data using IBM SPSS Statistics v23 for Windows. We applied either parametric or non-parametric tests depending on data distribution.
Results. The present research included 126 patients with AS (92 males and 34 females) aged between 23 to 73 years. The majority of the study population had tested positive for HLA-B*27 (121 patients, 96%). ASDAS-CRP and ASDAS-ESR were both strongly correlated ($p \leq 0.001$) with fatigue, BASFI (total scores as well as each sub-item) and prolonged hospitalization. These results remained significant when analyzing males and female patients separately. We did not identify notable differences between men and women regarding mean age, disease duration or activity, HLA-B*27 positivity, treatment, and BMI ($p>0.05$). Nevertheless, we found statistically significant relationships ($p<0.05$) between BMI and BASFI (total scores and all sub-items), the length of hospital stay and medical imaging-related costs in men, but not women with AS. In female participants, BMI was only correlated with age ($p=0.01$). Moreover, men with AS exhibited a significantly higher re-hospitalization rate compared to women ($p=0.006$).
Conclusions. Together with gender-related differences, the impact of body composition in AS remains a matter of debate. Our results indicate that higher BMI values may contribute to functional impairment in men with AS.

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WORK DISABILITY IN WOMEN WITH ANKYLOSING SPONDYLITIS AND RHEUMATOID ARTHRITIS: A SINGLE-CENTER OBSERVATIONAL STUDY

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Introduction. Both Ankylosing Spondylitis (AS) and Rheumatoid Arthritis (RA) have been shown to associate with early retirement from the workforce. The main objective of the present study was to examine the differences between female RA and AS patients with work disability.
Materials and Methods. We conducted a prospective observational study on active-age female patients with AS and RA. We excluded patients with juvenile onset of AS or RA. We performed the statistical analysis of the data using IBM SPSS Statistics v23 for Windows.
Results. The present research included 120 working-age women (56 with AS and 64 diagnosed with RA) hospitalized in our department between November 2019-April 2020. The two groups did not differ with regard to mean age (t-test, $p=0.135$) or disease duration (t-test, $p=0.124$). Women with RA were more likely to exhibit work disability compared to their AS counterparts (78.1% in the RA group versus 42.9% in AS; chi^2 test, $p=0.005$).
However, the mean age at the moment of retirement from the workforce did not differ significantly between women with AS and RA (42.5 years versus 41.9 years; t-test, $p=0.826$). The use of walking aids was significantly more frequent in RA participants (chi^2 test, $p=0.008$) compared to those with AS. Nevertheless, walking impairment was not significantly associated with work disability in the RA group. In women with AS, peripheral involvement was found in 17.9% of participants and did not demonstrate a notable association with early retirement (chi^2 test, $p=0.393$).
Conclusions. Work disability was more prevalent in women with RA compared to their AS counterparts in our study population. Nonetheless, the RA patients' retirement from the workforce did not occur at a significantly younger age.

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SIGNS OF CENTRAL SENSITIZATION IN PATIENTS WITH ANKYLOSING SPONDYLITIS

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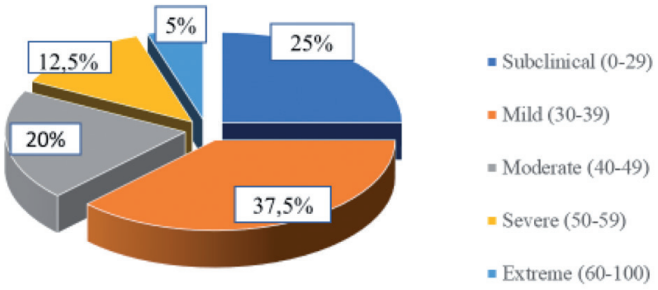
Introduction. In patients with ankylosing spondylitis (AS), signs of fibromyalgia (FM) are often detected, the pathogenetic mechanism of which is central sensitization (CS). In order to confirm the presence of CS, a questionnaire survey of patients with axial AS was carried out according to the CSI scale.
Materials and Methods. The study included 40 patients with axial AS, all patients were examined by a rheumatologist and a neurologist. The activity of the disease was assessed by the BASDAI index, the functional state was assessed by the BASFI index, the severity of pain at rest was determined by the VAS, the neuropathic scales DN4 Pain DETECT were questioned, the emotional state was determined by the HADS questionnaire, and the presence of CS was determined by the CSI scale.
Results. It was found that the average score on the questionnaire was 38.0 [30.0; 45.0]. The result of 40 or more points was observed only in 15 (35.7%) patients. Taking into account the presence of gradation on the CSI scale, we assessed the frequency of detecting one degree or another of CS in patients with AS. Subclinical CS was diagnosed in 10 patients (25%), mild in 15 (37.5%), moderate in 8 (20%), severe in 5 (12.5%), extremely severe in 2 (5%) (Fig. 1).
The severity of CS in patients with AS was associated with the intensity of pain according to the VAS (70.0 [40.0; 80.0] mm vs 20.0 [20.0; 40.0] mm, $p=0.001$), the presence of anxiety (11.0 [8.0; 13.0] vs 5.0 [3.0; 7.0], $p=0.001$) and depression (7.0 [4.0; 11.0] vs 3.0 [1.0; 4.0], p=0.01), with very high disease activity according to BASDAI (7.05 [5.7; 8.3] vs 4.2 [3.5; 5.5], $p=0.001$) and the worst functional state according to the BASFI index (5.2 [3.0; 6.8] vs 2.8 [1.2; 4.9], $p=0,02$).
Conclusion. central sensitization in patients with AS is detected with a lower frequency (37.5%) it is associated with the intensity of pain syndrome, anxiety-depressive disorders, disease activity and the presence of functional impairment.



P168. Fig. 1. The frequency of detection of CS according to the CSI scale in patients with AS.
Comparative analysis of patients with significant signs of CS (n=15) and without them (n=25) on the CSI scale did not reveal significant differences between them only in terms of disease duration and age; the rest of the groups differed significantly among themselves. (Table I).

P168. Table I. Comparative characteristics of patients with AS in groups with and without CS according to the CSI scale.

	Group CSI + (n=15)	Group CSI - (n=25)	*p*
Patient age (years)	35,0 [33,0; 44,0]	35,0 [30,0 ; 43,0]	0,4
Duration of illness (years)	9,0 [2,0; 14,0]	4,0 [2,0 ; 6,0]	0,2
DN4	3,0 [1,0; 4,0]	1,0 [0 ; 3,0]	**0,05**
Pain DETECT	12,0[6,0 ;18,0]	3,0 [1,0 ; 7,0]	**0,001**
VAS, mm	70,0 [40,0 ; 80,0]	20,0 [20,0; 40,0]	**0,001**
HADS- anxiety	11,0 [8,0 ; 13,0]	5,0 [3,0 ; 7,0]	**0,001**
HADS - depression	7,0 [4,0 ; 11,0]	3, 0 [1,0 ; 4,0]	**0,01**
BASDAI	7,05 [5,7;8,3]	4,2 [3,5 ; 5,5]	**0,01**
BASFI	5,2 [3,0 ; 6,8]	2,8 [1,2 ; 4,9]	**0,02**
CSI	49,0 [44,0;56,0]	34,0 [16,0;37,0]	**0,001**

P169

RADIOGRAPHIC VERSUS NON-RADIOGRAPHIC AXIAL SPONDYLOARTHRITIS: COMPARISON OF DAILY SELF-REPORTED FLARE EXPERIENCE

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Introduction. Axial spondyloarthritis (axSpA) is a chronic, inflammatory condition of the spine; comprised of radiographic (ankylosing spondylitis-AS) and non-radiographic (nr-axSpA) disease. Although nr-axSpA is considered an earlier stage of disease, the natural history of axSpA remains to be elucidated. Daily tracking of subtle changes in symptoms, disease activity and disease flares via smartphone technologies may facilitate further understanding of the axSpA disease spectrum.
Methods. At the Royal National Hospital for Rheumatic Diseases, patients with axSpA can log daily self-reported symptoms, behaviour and flare experience between clinic appointments via the Project Nightingale smartphone app. Users with ≥10 days of data entry were included for the analysis. Baseline (date closest to app registration) clinical measures collected at hospital appointments were also assessed. Mean (SD) daily symptom scores, behaviour, flare on/off values and baseline characteristics were reported for AS versus nr-axSpA. Welch's t-test was used to assess differences between diagnoses.
Results. Between 5th April 2018-1st April 2020, 179 patients consented to research and 137 logged ≥10 days of data in the Project Nightingale app. Results are presented in Table I. Experience of flare was similar in terms of frequency, duration and symptom patterns for patients with AS and nr-axSpA. Although, individuals with nr-axSpA maintained slightly higher levels of recommended exercise during flare (mean 3.7 versus 3.2, p=0.03). Anti-inflammatory use was significantly greater during flare for individuals with AS versus nr-axSpA (58.4% versus 37.9%, p=0.03). While caffeine intake reduced during flare for patients with AS, it increased for patients with nr-axSpA (-0.08 versus 0.13, p=0.003). Baseline disease activity (BASDAI) was greater in nr-axSpA than AS (4.4 versus 3.4), this difference exceeding the minimal clinically important difference for BASDAI, although not statistically significant (p=0.08).

P169. Table I. AS versus nr-axSpA: comparison of clinical characteristics and data collected in the Project Nightingale smartphone app.

	AS		Nr-axSpA		N users with data		p-value
	Mean	SD	Mean	SD	AS	Nr-axSpA	
Clinical characteristics							
Active_days (app)	146.30	194.01	158.03	190.65	149	30	0.761
Age at diagnosis	30.18	11.38	34.79	13.23	146	28	0.094
Age at onset	19.96	7.58	22.59	10.78	144	27	0.234
Delay to diagnosis	10.15	9.28	13.20	11.95	143	25	0.234
Disease duration	34.44	13.75	20.26	12.47	144	27	0.000004**
Age at Project Nightingale Consent	54.43	12.06	41.67	12.66	149	30	0.00001**
Current Smoker	0.15	0.36	0.07	0.25	149	30	0.145
Non-Smoker	0.32	0.47	0.20	0.41	149	30	0.174
Ex-Smoker	0.30	0.46	0.13	0.35	149	30	0.026
HLAB27Status	0.91	0.28	0.67	0.48	136	30	0.011
Male	0.73	0.44	0.43	0.50	149	30	0.005**
Female	0.27	0.44	0.57	0.50	149	30	0.005**
Psoriasis (proportion "yes")	0.27	0.45	0.23	0.43	128	22	0.647
Crohns Disease (proportion "yes")	0.11	0.31	0.05	0.21	128	22	0.237
Dactylitis (proportion "yes")	0.06	0.24	0.05	0.21	128	22	0.737
Enthesitis (proportion "yes")	0.39	0.49	0.59	0.50	128	22	0.094
Ulcerative Colitis (proportion "yes")	0.05	0.23	0.09	0.29	128	22	0.587
Uveitis (proportion "yes")	0.65	0.48	0.23	0.43	128	22	0.0002**
	AS		Nr-axSpA		N users with data		p-value
	Mean	SD	Mean	SD	AS	Nr-axSpA	
Xray Disease	0.90	0.31	0.13	0.35	96	8	0.0003**
Xray Sacroiliitis	1.00	0.00	0.40	0.51	144	15	0.0004**
MRI Sacroiliitis	1.00	0.00	0.87	0.34	11	23	0.083
BASDAI	3.39	1.89	4.37	2.23	105	20	0.080
BASFI	3.42	2.50	3.13	2.35	99	20	0.627
BASMI	3.36	2.07	2.05	1.37	90	16	0.003**
AsQol	7.21	4.58	6.90	5.89	89	18	0.834
WPAI1 - currently employed.	0.56	0.50	0.81	0.40	77	16	0.037**
WPAI5 - work productivity impairment	3.00	2.63	4.00	3.36	43	12	0.355
WPAI6 - activity impairment	3.74	2.80	3.75	3.00	78	16	0.994
Patient_global_score	3.65	2.27	4.13	2.87	88	16	0.537
EQ5D_AnxietyDepression	1.72	0.83	1.93	1.16	76	15	0.515
EQ5D_PainDiscomfort	2.39	0.71	2.53	0.99	76	15	0.612
EQ5D5L..Overall.	0.67	0.18	0.63	0.29	76	15	0.556
Flare characteristics							
Flare frequency^	0.07	0.07	0.09	0.08	113	24	0.184
Flare duration	6.40	9.79	7.93	8.89	100	23	0.469
N flares	8.12	11.84	13.08	14.33	113	24	0.123
Umotif petal data							
(Values below scored "yes" or "no". Means presented for proportion of time where "yes")							
Anti-inflammatory use	0.47	0.41	0.32	0.38	113	24	0.092
Anti-inflammatory_flare_off	0.44	0.40	0.30	0.38	113	23	0.117
Anti-inflammatory_flare_on	0.58	0.39	0.38	0.39	100	23	0.029**
Anti-inflammatory_flare_on_diff	0.13	0.29	0.12	0.25	100	22	0.936
(Values below scored on 1-5 Likert Scale, whereby 5 is the most positive outcome)							
Caffeine intake	3.35	0.79	2.92	0.37	47	10	0.016**
Caffeine intake_flare_off	3.28	0.88	2.86	0.38	47	10	0.023**
Caffeine intake_flare_on	3.30	0.91	2.97	0.46	41	9	0.129
Caffeine intake_flare_on_diff	-0.08	0.34	0.13	0.12	41	9	0.003**
Fatigue	3.50	0.81	3.24	0.75	113	24	0.143
Fatigue_flare_off	3.54	0.82	3.32	0.77	113	23	0.226
Fatigue_flare_on	2.97	0.97	2.87	0.75	100	23	0.616
Fatigue_flare_on_diff	-0.56	0.61	-0.52	0.39	100	22	0.715
Mood	3.35	0.77	3.24	0.62	113	24	0.463
Mood_flare_off	3.35	0.78	3.30	0.64	113	23	0.717
Mood_flare_on	2.97	0.86	2.88	0.66	100	23	0.585
Mood_flare_on_diff	-0.37	0.51	-0.46	0.39	100	22	0.335
Pain	3.75	0.63	3.66	0.56	113	24	0.492
Pain_flare_off	3.85	0.62	3.85	0.54	113	23	0.967
Pain_flare_on	3.03	0.64	3.00	0.57	100	23	0.813
Pain_flare_on_diff	-0.75	0.54	-0.88	0.48	100	22	0.285
Recommended exercise	3.53	1.00	3.85	0.87	113	24	0.127
Recommended exercise_flare_off	3.50	1.03	3.86	0.89	113	23	0.097
Recommended exercise_flare_on	3.21	1.14	3.71	0.90	100	23	0.028**
Recommended exercise_ flare_on_diff	-0.33	0.78	-0.23	0.46	100	22	0.454
Sleep quality	3.45	0.60	3.42	0.53	113	24	0.829
Sleep quality_flare_off	3.40	0.64	3.40	0.59	113	23	0.972
Sleep quality_flare_on	3.18	0.64	3.20	0.50	100	23	0.925
Sleep quality_flare_on_diff	-0.22	0.37	-0.25	0.28	100	22	0.623
Stress	4.01	0.67	3.85	0.66	113	24	0.287
Stress_flare_off	4.01	0.71	3.84	0.67	113	23	0.300
Stress_flare_on	3.64	0.88	3.67	0.70	100	23	0.889
Stress_flare_on_diff	-0.36	0.68	-0.24	0.45	100	22	0.324

^Flare frequency reported as a proportion of each users' number of active days.
**p<0.05.
N: number of; BASDAI: Bath Ankylosing Spondylitis Disease Activity Index; BASFI: Bath Ankylosing Spondylitis Function Index; BASMI: Bath Ankylosing Spondylitis Metrology Index; ASQOL: Ankylosing Spondylitis Quality of Life; WPAI: Work Productivity and Activity Impairment.

Conclusions. Experience of flare is similar in AS and nr-axSpA, including frequency, duration and symptoms. However, exercise and medication behaviour during flare differed. Burden of disease is similar in AS and nr-axSpA.

Acknowledgements. UCB supported use of the Project Nightingale smartphone application, hosted by uMotif. The time of R Barnett was funded by the Sir Halley Stewart Trust.

P170

THE MSQUASH; A VALID, RELIABLE AND RESPONSIVE QUESTIONNAIRE FOR DAILY PHYSICAL ACTIVITY IN PATIENTS WITH AXIAL SPONDYLOARTHRITIS

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Introduction. In daily clinical practice and research, there is a need to assess the amount and type of daily physical activity more specifically in patients with axial spondyloarthritis (axSpA). Therefore, our aim was to adapt the Short QUestionnaire to Assess Health-enhancing physical activity (SQUASH) in order to improve measurement properties in patients with axSpA.
Methods. The original SQUASH was adapted using a qualitative stepwise approach with in-depth interviews including healthcare professionals and patients. Content validity was explored by comparing modified-SQUASH (mSQUASH) and original SQUASH. Next, mSQUASH was validated according to the OMERACT filter. International Physical Activity Questionnaire (IPAQ) was used as comparator and tri-axial accelerometer as gold standard for criterion validity and classification accuracy of intensity. Construct validity was assessed using Spearman correlations with clinical outcome assessments. For test-retest reliability, intra-class correlation coefficients (ICCs) were calculated. Responsiveness was assessed using standardized response mean (SRM), stratified by Ancor method.
Results. The mSQUASH measured a systematically higher activity count and had less missing values (8% vs. 16%) then SQUASH. mSQUASH correlated better with accelerometer compared to IPAQ (ϱ=0.60 vs. ϱ=0.34). Accelerometer measured most activity in light intensity, whereas mSQUASH and IPAQ pre-

dominately measured moderate intensity. Correlations with ASDAS, BASDAI, BASFI and ASQoL were better for mSQUASH then IPAQ. Test-retest reliability was good in both questionnaires. In contrast to IPAQ, responsiveness was in correspondence with self-reported changes in physical activity for mSQUASH (SRM -0.84 for improvement and 0.88 for decrease; Table I). The average completion time of the mSQUASH was 7 minutes.
Conclusions. The development of the mSQUASH resulted in an easy applicable, valid, reliable and responsive questionnaire for the assessment of daily physical activity in patients with axSpA, which can be used in research and daily clinical practice.

P170. Table I. Responsiveness (SRM) of m SQUASH and IPAQ and comparison with changes in BASDAI.

mSQUASH	Baseline	3 months	SRM	95% CI
improved group (n=12)	8189 (4408)	9684 (4155)	-0.84	-1.47 to -0.20
stable group (n=31)	9127 (4960)	8310 (4328)	0.17	-0.20 to 0.53
decreased group (n=15)	6833 (4148)	4281 (3413)	0.88	0.32 to 1.43
IPAQ	**Baseline**	**3 months**	**SRM**	**95% CI**
improved group (n=9)	1025 (12730)	8169 (8370)	0.36	-0.40 to 1.13
stable group (n=19)	5359 (4099)	3962 (4104)	0.53	0.05 to 1.01
decreased group (n=12)	3572 (59494)	3908 (8426)	-0.11	-0.75 to 0.52
BASDAI	**Baseline**	**3 months**	**p-value**	
improved group (n=12)	5.4 (2.2)	3.6 (2.0)	0.020	
stable group (n=21)	3.0 (2.0)	3.0 (1.9)	0.761	
decreased group (n=14)	5.0 (2.0)	5.5 (2.3)	0.274	

Data presented as mean (± SD); SRM, Standardized response mean; CI, Confidence Interval.

P171

CLINICAL CHARACTERISTICS OF COVID-19 IN PATIENTS WITH ANKYLOSING SPONDYLITIS: THE REPUBLIC OF TATARSTAN EXPERIENCE

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The management of patients with ankylosing spondylitis (AS) and COVID-19 is a significant problem due to the insufficient evidence base on this topic.
Objective. To assess the course of COVID-19 and the infection influence on the clinical characteristics of AS in patients in the Republic of Tatarstan.
Materials and Methods. From March 2020 to February 2021, 62 cases of new coronavirus infection were reported in patients with AS: 12 people were under the supervision of the infectious diseases department of the Republican Clinical Hospital (Kazan, Republic of Tatarstan, Russia) (6 outpatients, 6 hospitalized) with a laboratory-confirmed SarsCoV2. The age of the patients ranged from 34 to 73 years (mean 54.6±14.3), 58.1% were men, the duration of AS at the time the COVID-19 manifestation was 12.46±5.8 years. The results of clinical and laboratory examinations were assessed during COVID-19 and after 1-3 months. High-resolution X-ray computed tomography (CT) of the lungs was performed.
Results. The frequency and severity of COVID-19 symptoms in patients with AS were comparable to the course of infection in the population: fever, weakness, dyspnea, cough, chest pain, ageusia, anosmia. Most of the patients had asymptomatic or mild COVID-19. 12 observed patients had a moderate severity course of COVID-19. Bilateral polysegmental pneumonia was detected in 9 patients: CT1– in 4, CT2- in 4, CT3- in 1 patient.
COVID-19 therapy included: paracetamol, hydroxychloroquine, glucocorticoids, enoxaparinum, oxygen support (3 pts). The outcome: recovery of all patients. Activity of AS after 3 months was increased: BASDAI baseline was 3.9±2.1 raised to 5.7±1.7 points after 3 months, similar to $ASDAS_{CRP}$ from 2.6±1.2 raised to 3.7±0.2, BASFI from 3.0±1.9 raised to 3.8±1.8; one patient transferred from inactive state of AS to a very high activity.
Conclusion. The prevalence and course of COVID-19 in patients with AS did not differ from that in the population. However, the coronavirus infection has led to increased pain and increased AS activity.

P172

SEX-SPECIFIC CHALLENGES IN PATIENTS WITH PSORIATIC ARTHRITIS (PsA): PRELIMINARY RESULTS FROM A SYSTEMATIC LITERATURE REVIEW (SLR)

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Introduction. Differences in psoriatic arthritis (PsA) clinical phenotype and treatment outcomes by sex have been reported, but evidence remains limited for real-world clinical populations (1). The aim of this systematic literature review (SLR) was to identify sex-specific challenges to consider in research design and the development of management recommendations for PsA. Here, we present initial findings on reported clinical characteristics and disease activity scores by sex.
Methods. MEDLINE, Embase and the Cochrane Library were searched in November 2020 to identify observational studies published after 1 January 2015. Bibliographies of SLRs and (network) meta-analyses were hand-searched along with relevant congress proceedings and ClinicalTrials.gov. Eligible studies prespecified a comparison by sex, and reported clinical characteristics and/or disease activity scores for adult patients with PsA (N>100).
Results. Database searches yielded 3,283 unique records; 29 fulfilled the inclusion criteria. Hand-searches identified two additional records, totalling 31 included records (Fig. 1), 23 of which were prioritised for discussion here. Of the studies reporting clinical characteristics by sex, four studies reported peripheral arthritis, eight reported axial disease (spondylitis), ten reported enthesitis, six reported dactylitis, eleven reported skin disease (plaque psoriasis), and three reported nail disease (GRAPPA six clinical domains (2)). Fourteen studies reported tender joint count (TJC) and fourteen reported swollen joint count (SJC) (Table I). Seven studies also presented treatment outcomes by sex. Overall, women were reported to have more peripheral arthritis and higher TJC than men. However, some studies reported no significant differences by sex in peripheral arthritis or TJC, and one study reported that men had significantly higher TJC than women. Other comparisons by sex reported no significant (dactylitis) or no consistent differences (axial disease, enthesitis, skin and nail disease, SJC).
Conclusions. A small number of studies reported clinical characteristics/disease activity scores by sex. The sex-specific data that have been reported to date are limited, and there is a clear unmet need for further understanding of real-world, sex-specific differences in PsA.

Acknowledgements. This study was funded by UCB Pharma. Editorial services were provided by Costello Medical and funded by UCB Pharma.

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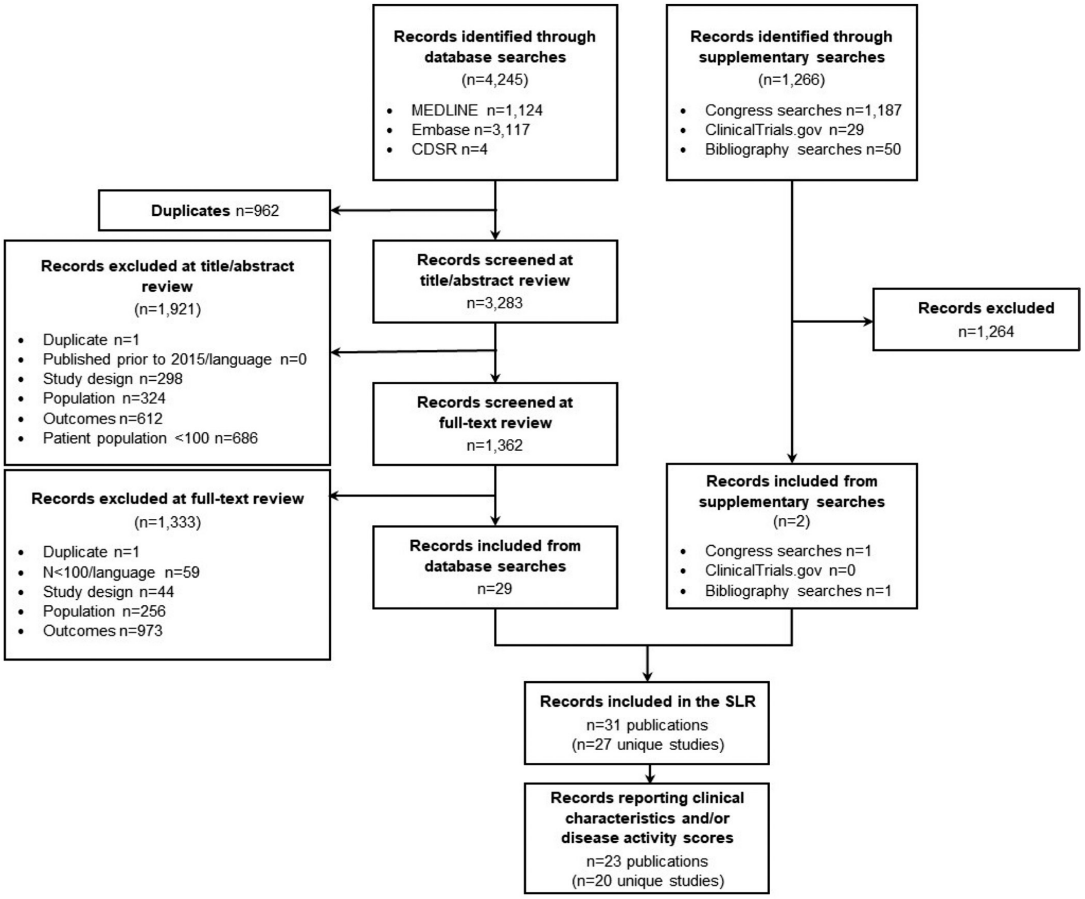
Disclosures

LCC: Grant/research support from AbbVie, Amgen, Celgene, Gilead, Janssen, Lilly, Novartis, Pfizer, UCB Pharma; Consulting fees from: AbbVie, Amgen, Biogen, Boehringer Ingelheim, Celgene, Domain, Gilead, Janssen, Lilly; Speaker's bureau for: AbbVie, Amgen, Biogen, Celgene, Gilead, GSK, Janssen, Lilly, Medac, Novartis, Pfizer and UCB Pharma.
IvdHB: Grant/research support from AbbVie, MSD, Pfizer; Consultant for AbbVie, MSD, Novartis, UCB Pharma; Speaker's bureau: AbbVie, BMS, MSD and Pfizer.
EL: Consultant for AbbVie, Celgene, Novartis, Pfizer and UCB Pharma.
SB, ED: Employees of Costello Medical.
LS, BU: Employees of UCB Pharma.
AO: Grant/research support to researcher's institution from Pfizer Novartis to Penn, Amgen to Forward/NDB; Consultant for: AbbVie, Amgen, BMS, Celgene, Corrona, Eli Lilly, Janssen, Novartis and Pfizer.



P172. Fig. 1. PRISMA flow diagram.

CDSR: Cochrane Database of Systematic Reviews;

SLR: systematic literature review..

P172. Table I. Baseline psoriatic arthritis clinical characteristics and disease activity scores based on GRAPPA domains.

Outcomes	Identified studies	Study design	Sample size (M/F)	M/F	P-values	Summary of results
GRAPPA domain						
Peripheral arthritis (also including oligo- and polyarthritis manifestations)	Benavent 2019a	Prospective cohort	109 (55/54)	N (%) pts with polyarticular arthritis: 18 (32.0)/34 (63.1)	0.02	Three out of four studies report that women have significantly more peripheral disease than men. The difference between sexes was inconclusive in the one study that used multiple measures.
	Kalyoncu 2017	Retrospective cohort	1081 (379/702)	Pts with peripheral arthritis (%): 59.4/68.5	0.011	
Presence of peripheral arthritis, asymmetric oligoarthritis, symmetric polyarthritis, polyarticular arthritis, n (%) or BASDAI 4 studies	Nas 2017	Prospective cohort	187 (72/115)	N (%) pts with asymmetric oligoarthritis: 37 (51.4)/56 (48.7)	0.718	
				N (%) pts with symmetric polyarthritis: 11 (15.3)/20 (17.4)	0.708	
				BASDAI score [peripheral arthritis subdomain], mean (SD): 3.0 (2.8)/4.2 (3.1)	0.006	
	Vieira-Sousa 2019	Prospective cohort	750 (373/377)	N (%) pts with asymmetric oligoarthritis: 46 (13.9)/49 (14.8)	Sex difference for all clinical subtypes <0.001	
				N (%) pts with symmetric polyarthritis: 173 (52.3)/228 (68.9)		
Axial disease Presence of axial disease, n (%) or BASMI score	Benavent 2019a	Prospective cohort	109 (55/54)	N (%) pts with axial involvement: 37 (67.3)/20 (37.2)	0.01	The identified evidence (eight studies) found no consistent differences between sexes.
	Hojgaard 2018	Observational cohort	1750 (815/935)	N (%) pts with axial involvement:	0.24	

8 studies				207 (25)/215 (23)		
	Kalyoncu 2017	Retrospective cohort	1081 (379/702)	N (%) pts with axial involvement: 41 (11)/62 (8.9)	0.011	
	Kenar 2018	Cross-sectional study	117 (39/78)	BASMI score, median (min–max): 20 (0–50)/20 (0–50)	0.13	
	Nas 2017	Prospective cohort	187 (72/115)	N (%) pts with axial involvement: 15 (20.8)/17 (14.8)	0.286	
				BASMI score, mean SD: 1.5 (1.9)/1.3 (1.2)	0.529	
	Nas 2020	Prospective cohort	373 (150/223)	BASMI score, median (min–max): 2 (0–9)/2 (0–9)	0.416	
	Nurmohamed 2020	Observational cohort	929 (417/512)	Pts with axial involvement (%): 26.0/29.0	NR	
	Vieira-Sousa 2019	Prospective cohort	750 (373/377)	N (%) pts with axial involvement: 86 (26.0)/42 (12.7)	<0.001	
Enthesitis Presence of enthesitis, n (%) or MASES/BASDAI score 10 studies	Braaten 2019	Cross-sectional study	253 (115/137)	Leeds Enthesitis Index count (0–6), mean (SD): 0.4 (0.8)/0.5 (1.0)	0.25	Of four studies reporting MASES scores, three reported significantly higher scores in women. There was no significance difference in prevalence of
	Garcia 2019	Observational cohort	347 (151/196)	N (%) pts with enthesitis: 35 (25)/38 (21.3)	NR	
	Gossec 2019	Cross-sectional survey	2270 (1223/1047)	N (%) pts with enthesitis: 72 (5.9)/59 (5.6)	0.86	
	Grivas 2020	Cross-sectional study	135 (52/83)	N (%) pts with enthesitis: 7 (13.5)/27(32.5)	0.013	enthesitis between sexes across six studies.
	Haugeberg 2020a	Cross-sectional study	141 (68/69)	MASES score, mean (SD): 1.9 (2.5)/4.0 (3.4)	<0.001	
	Haugeberg 2020b	Cross-sectional study	131 (66/65)	MASES score, mean (SD): 1.8 (2.4)/4.1 (3.3)	<0.001	
	Kalyoncu 2017	Retrospective cohort	1081 (379/702)	N (%) pts with enthesitis: 36 (10.1)/79 (12.1)	0.36	
			1003 (NR/NR)	Leeds enthesitis index count (0–6), mean (SD): 0.2 (0.5)/0.2 (0.8)	0.43	
	Kenar 2018	Cross-sectional study	117 (39/78)	Pts with enthesitis (%): 10.2/8.9	0.82	
	Nas 2017	Prospective cohort	187 (72/115)	MASES score, mean (SD): 1.0 (1.5)/1.5 (1.3)	0.117	
				BASDAI score [enthesitis subdomain], mean (SD): 3.2 (2.8)/3.8 (3.0)	0.201	
	Vieira-Sousa 2019	Prospective cohort	750 (373/377)	MASES score, mean (SD): 1.1 (2.1)/3.0 (3.9)	<0.001	
Dactylitis Presence of dactylitis, n (%) 6 studies	Braaten 2019	Cross-sectional study	253 (114/137)	Dactylitis count (0–20), mean (SD): 0.4 (1.2)/0.3 (1.0)	0.68	No significant difference in dactylitis between sexes across all six studies.
	Garcia 2019	Observational cohort	347 (151/196)	N (%) patients with dactylitis: 48 (34.8%)/48 (26.4%)	NR	
	Gossec 2019	Cross-sectional survey	2270 (1223/1047)	N (%) pts with dactylitis: 75 (6.1)/79 (7.5)	0.21	

	Grivas 2020	Cross-sectional study	135 (52/83)	N (%) pts with dactylitis: 10 (19.2)/20 (24.1)	0.508	
	Kalyoncu 2017	Retrospective cohort	1081 (379/702)	N (%) pts with dactylitis: 29 (7.9)/43 (6.4)	0.66	
	Kenar 2018	Cross-sectional study	117 (39/78)	Pts with dactylitis (%): 10.2/6.4	0.48	
Skin disease (plaque psoriasis) BSA or PASI score 11 studies	Braaten 2019	Cross-sectional study	253 (115/138)	PGA x BSA (0–500), mean (SD): 10.7 (37.9)/5.4 (10.9)	0.07	No significant result, or a mixed significance depending on measure, was seen in six of eleven studies. In five of the seven studies reporting PASI scores, scores were significantly worse in men, and in the remaining two studies, scores for men were numerically higher.
	Colombo 2016	Post hoc analysis of observational cohort study	225 (121/104)	PASI score, mean (SD): 8.0 (7.7)/5.8 (6.9)	0.028	
	Gorlier 2018	Cross-sectional study	451 (266/185)	Pts with BSA ≥5% (%): 10.6/8.4	0.49	
	Gossec 2019	Cross-sectional survey	2270 (1223/1047)	BSA score, mean (%): 5.5 (8.1)/5.5 (8.4)	0.87	
	Grivas 2020	Cross-sectional study	135 (52/83)	BSA score, median (25th–75th percentile): 2 (0–6)/0 (0–2)	0.139	
				PASI score, median (25^{th}–75th percentile): 1 (0–4.8)/0 (0–2)	0.258	
	Haugeberg 2020a	Cross-sectional study	141 (68/69)	PASI score, mean (SD): 3.3 (4.2)/2.6 (3.7)	0.03	
	Haugeberg 2020b	Cross-sectional study	131 (66/65)	PASI score, mean (SD): 3.2 (4.2)/1.8 (2.9)	0.033	
				N (%) patients with PASI score >10: 8 (12.1%)/2 (3.1%)	0.054	

	Kalyoncu 2017	Retrospective cohort	406 (NR/NR)	N (%) pts with BSA ≤3%: 68 (50)/167 (61.8)	0.022	
				BSA, mean (SD): 8.4 (14.2)/4.9 (8.0)	0.69	
	Kenar 2018	Cross-sectional study	117 (39/78)	PASI score, median (min–max): 3.6 (0–53.8)/ 2.5 (0–46.8)	0.12	
	Nas 2017	Prospective cohort	187 (72/115)	PASI score, mean (SD): 15.8 (21.2)/8.3 (11.9)	0.035	
	Nas 2020	Prospective cohort	373 (150/223)	PASI score, median (min–max): 2 (0–24)/1 (0–47)	0.005	
Nail disease Presence of nail disease, n (%) 3 studies	Braaten 2019	Cross-sectional study	253 (113/125)	N (%) pts with psoriatic fingernails: 67 (59)/51 (41)	0.004	Limited evidence identified (three studies), with one study reporting significantly worse nail disease in men.
	Garcia 2019	Observational cohort	347 (151/196)	N (%) pts with nail disease: 28 (38.4)/21 (24.7)	NR	
	Kalyoncu 2017	Retrospective cohort	1081 (379/702)	N (%) pts with nail involvement: 189 (49.8)/314 (44.7)	0.21	
Joint Counts						
Tender joint count 14 studies	Braaten 2019	Cross-sectional study	253 (115/138)	Mean (SD): 7.9 (10.8)/7.7 (9.1)	0.45	Nine out of fourteen studies conclude there is a significant difference between sexes with regards to TJC, however results are conflicting, with eight reporting significantly higher
	Garcia 2019	Observational cohort	347 (125/167)	Mean (IQR): 6.5 (3.0–8.0)/7.3 (4.0–10.0)	NR	
	Gorlier 2018	Cross-sectional study	451 (266/185)	Mean SD: 3.8 (9.5)/5.4 (9.2)	<0.001	
	Gossec 2019	Cross-sectional survey	2270 (1223/1047)	Mean (SD): 4.5 (8.0)/4.1 (5.2)	0.03	

	Grivas 2020	Cross-sectional study	135 (52/83)	Median (IQR): 3 (0–13)/11 (4–16)	0.001	TJC in women, and one in men.
	Haugeberg 2020a	Cross-sectional	141 (68/69)	Mean (SD): 7.8 (10.1)/12.3 (11.6)	0.023	
	Haugeberg 2020b	Cross-sectional	131 (66/65)	Mean (SD): 8.1 (10.3)/12.7 (11.6)	0.018	
	Hojgaard 2018	Observational cohort	1750 (815/935)	Median (min–max): 5 (2–11)/6 (3–13)	<0.01	
	Kalyoncu 2017	Retrospective cohort	1043 (NR/NR)	Mean (SD): 3.4 (4.3)/3.7 (5.0)	0.93	
				N (%) pts with ≤1 TJC: 158 (43.3)/292 (43.1)	0.97	
	Kenar 2018	Cross-sectional study	117 (39/78)	Median (min–max): 1 (0–15)/1 (0–13)	0.55	
	Nas 2017	Prospective cohort	187 (72/115)	Mean (SD): 4.6 (7.9)/ 8.2 (10.8)	0.01	
	Nurmohamed 2020	Observational cohort	929 (417/512)	Mean: 10.4/13.0	NR	
	Passia 2020	Prospective cohort	567 (273/294)	Women presented significantly higher TJC at baseline than men	Significant (p-value NR)	
	Vieira-Sousa 2019	Prospective cohort	750 (373/377)	Mean (SD): 7.3 (8.1)/11.9 (10.4)	<0.001	
Swollen joint count 14 studies	Braaten 2019	Cross-sectional study	253 (115/138)	Mean (SD): 3.7 (6.8)/3.5 (4.7)	0.33	Three of fourteen studies report a significantly higher SJC in women. The remaining eleven studies demonstrate no significant difference between the sexes.
	Colombo 2016	Post-hoc analysis of observational cohort study	225 (121/104)	Mean: 3.4/5.1	0.1115	
	Garcia 2019	Observational cohort	272 (116/156)	Mean (IQR): 4.8 (2.0–6.0)/5.2 (2.0–8.0)	NR	
	Gorlier 2018	Cross-sectional study	451 (266/185)	Mean (SD): 2.0 (6.8)/ 2.1 (5.7)	0.14	
	Gossec 2019	Cross-sectional survey	2270 (1223/1047)	Mean (SD): 3.5 (6.9)/3.2 (7.0)	0.39	
	Grivas 2020	Cross-sectional study	135 (52/83)	Median (IQR): 3 (0–14)/10 (5–17)	0.013	
	Haugeberg 2020a	Cross-sectional	141 (68/69)	Mean (SD): 0.6 (1.2)/0.6 (0.9)	0.91	
	Haugeberg 2020b	Cross-sectional	131 (66/65)	Mean (SD): 0.6 (1.1)/ 0.7 (1.0)	0.49	
	Hojgaard 2018	Observational cohort	1750 (815/935)	Median (IQR): 2 (0–5)/2 (0–5)	0.09	
	Kalyoncu 2017	Retrospective cohort	1043 (NR/NR)	Mean (SD): 1.8 (2.8)/1.6 (3.1)	0.91	
				N (%) pts with ≤1 SJC: 235 (63.8)/463 (68.7)	0.11	
	Kenar 2018	Cross-sectional	117 (39/78)	Median (min–max): 0 (0–10)/0 (0–8)	0.92	
	Nas 2017	Prospective cohort	187 (72/115)	Mean (SD): 0.9 (1.7)/2.0 (4.4)	0.015	
	Nurmohamed 2020	Observational cohort	929 (417/512)	Mean: 5.5/5.8	NR	
	Vieira-Sousa 2019	Prospective cohort	750 (373/377)	Mean (SD): 4.4 (4.4)/6.2 (6.3)	<0.001	

Blue *p*-values are significant and orange p-values are not significant. BASDAI: Bath Ankylosing Spondylitis Disease Activity Index; BASMI: Bath Ankylosing Spondylitis Metrology Index, BSA: body surface area, F: female; GRAPPA: Group for Research and Assessment of Psoriasis and Psoriatic Arthritis; IQR: interquartile range; M: male; MASES: Maastricht Ankylosing Spondylitis Enthesis Score; min-max: minimum to maximum; NR: not reported; PASI: Psoriasis Area and Severity Index; PGA: Physician's Global Assessment; pts: patients; SD: standard deviiation; SJC: swollen joint count; TJC: tender joint count.

P173

IMPACT OF SKIN SEVERITY ON PSORIATIC ARTHRITIS ACTIVITY, QUALITY OF LIFE (QoL) AND WORK PRODUCTIVITY

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Introduction. PsA is a chronic inflammatory arthritis with heterogeneous clinical manifestations. Disease burden and quality of life (QoL) is significantly affected by skin aspects of the disease.
Aim. To assess the impact skin simptoms on QoL and work productivity by WPAI in PsA patients (pts).
Material and Methods. 187 (M/F=97 (50.2%)/90(48.8%) PsA pts fulfilling the CASPAR criteria were included. Mean age 45.6±11.7 years (yrs), DAPSA 21.05±21.03, median (Me) PsA duration 88 [16;421] mo. All pts underwent standard clinical examinations and PROs (EQ-5D, PsAID12, WPAI) Analysis were performed in 2 groups: BSA >3% (40,5%) and BSA ≤ 3% (59.5%), using parametric and non-parametric tests as appropriate.
Results. Pts with BSA> 3% had significantly worse joint severity, QoL and WPAI compare to those with BSA≤ 3%: DAPSA 37.0±23.0 vs 24.0±21.1; PsAID-12 4.48±2.4 vs. 2.56±2.46; EQ-5D index 0.73±0.17 vs. 0.56±0.21; absenteeism 0.30±0.14 vs. 0.19±0.04; presenteeism 0.26±0.24 vs 0.21± 0.14; overall work productivity impairment 0.35±0.34 vs. 0.26± 0.17 and daily activity impairment 0.51±0.26 vs. 0.29±0.26, accordingly.
Conclusion. In PsA pts reported that BSA >3% is associated with greater PsA disease activity and worse QoL and WPAI.

P174

RISK FACTORS ASSOCIATED WITH UNFAVORABLE COVID-19 IN SPONDYLOARTHRITIS PATIENTS – DATA FROM THE REUMACOV-BRAZIL REGISTRY

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Background/Aim. To compare the COVID-19 outcomes between axial SpA (axSpA) e Psoriatic Arthritis (PsA) patients.
Methods. The ReumaCoV Brazil is a multicenter, observational, prospective cohort designed to monitor immune-mediated rheumatic diseases patients during SARS-CoV-2 pandemic. SpA and PsA patients, according to the ASAS (2009) and CASPAR (2006) classification criteria, respectively, were enrolled. Both groups were diagnosed as COVID-19 (cases) or no COVID-19 (controls) and matched to age and sex. Demographic and clinical data were collected on REDCap platform.
Results. From May 2020 to Jan 2021, 163 SpA patients with COVID-19 were included, of whom 101 (62.6%) with axSpA and 62 (37.4%) with PsA. The mean time duration of COVID-19 was 13.1±9.9 days. Around 15% were hospitalized (n=24), being 9 (5.5%) in intensive unit care. Although PsA patients were significantly older and with more diabetes, AxSpA patients had higher need of mechanical ventilation (p=0.048). After multiple adjustments, therapy withdrawal, and to be on leflunomide, regardless age and comorbidities, were the main risk factors significantly associated with hospitalization. However, there was no difference related to death. In addition, patients who reported some medical appointment using telemedicine had 91% lower hospitalization probability (p=0.027).
Conclusions. Our data showed AxSpA had same hospitalization rate than PsA patients, but more severe COVID-19 forms needing mechanical ventilation, associated with specific therapy interruption. Telemedicine was a protective factor. Therefore, a virtual approach may be an important strategy during the pandemic to mitigate the risk of hospitalization, especially to provide higher awareness regarding DMARDs maintenance.

P175

DISTRIBUTION OF COMORBIDITIES IN SPONDYLOARTHRITIS WITH REGARD TO THE PHENOTYPE AND THE PRESENCE OF PSORIASIS: DATA FROM THE ASAS-COMOSPA STUDY

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Introduction. The objective is to compare the prevalence of comorbidities between patients with axial and peripheral phenotypes and to evaluate the role of psoriasis in such comorbidities in the whole spectrum of SpA.
Methods. Patients from the cross-sectional ASAS-COMOSPA study were classified as having either axial or peripheral phenotype. Patients with each phenotype were divided into two groups depending on the presence or history of psoriasis. Pair-wise comparisons among the four groups were conducted through univariate logistic regressions and generalized linear mixed models using disease duration and country as fixed and random effects, respectively. Multivariate analysis was used to evaluate whether psoriasis and the phenotype are independently associated with each comorbidity.
Results. A total of 3291 patients were included in this analysis. The peripheral phenotype with psoriasis showed the highest prevalence of hypertension, dyslipidaemia and diabetes, while axial phenotype without psoriasis exhibited the lowest prevalence of dyslipidaemia, diabetes and stroke (Table I). Among patients with psoriasis, the axial phenotype showed a significantly [OR, 95%CI] lower prevalence of hypertension [OR 0.5, 0.4-0.8] and lower Framingham score [OR 0.97, 0.95-0.99] compared to peripheral patients. Among patients with axial phenotype, patients with psoriasis showed higher prevalence of hypertension [OR 1.8, 1.4-2.2], dyslipidaemia [OR 2.0, 1.7-2.5], diabetes [OR 2.1, 1.4-3.0] and Framingham score [OR 1.0, 1.0-1.1] than non-psoriatic patients. Multivariate analysis confirmed that hypertension, dyslipidaemia and the Framingham score are independently associated with both the psoriasis and the peripheral phenotype. Prostatic cancer and colon cancer were independently associated with the presence of psoriasis but not with the phenotype. No differences were found across groups concerning osteoporosis.
Conclusions. Both a peripheral phenotype and the presence of psoriasis were independently associated with an increased CV risk. Psoriasis seems to be associated with a higher prevalence of some malignant diseases.

P175. Table I. Description of comorbidities across the four groups.

	Psoriatic axial n=460 n (%)	Non-psoriatic axial n=2541 n (%)	Psoriatic peripheral n=147 n (%)	Non-psoriatic peripheral n=136 n (%)	p-value*
BMI, mean (SD)	27.4 (5.5)	25.5 (5.5)	27.3 (5.7)	26.6 (5.3)	**<0.001**
Hypertension	135 (29.5)	487 (19.2)	66 (44.9)	25 (18.4)	**<0.001**
Dyslipidemia	113 (24.8)	359 (14.2)	50 (34)	23 (17)	**<0.001**
Diabetes	37 (8.1)	104 (4.1)	13 (8.8)	7 (5.2)	**<0.001**
Ischemic heart disease	16 (3.5)	51 (2)	5 (3.4)	2 (1.5)	0.162
Stroke	11 (2.4)	22 (0.9)	3 (2)	2 (1.5)	**0.028**
Waist circumference, mean (SD)	95.2 (15.5)	88.3 (15.1)	92.6 (13.6)	90.1 (16.2)	**<0.001**
Framingham score, mean (SD)	9.6 (8.7)	6.6 (7.5)	11.8 (8.8)	5.8 (6)	**<0.001**
Prostatic cancer (for men only)	5 (1.8)	5 (0.3)	0 (0)	0 (0)	**0.006**
Breast cancer (for women only)	(1.7)	3 (0.4)	1 (1.4)	0 (0)	0.181
Uterus cancer (for women only)	1 (0.6)	9 (1.2)	2 (2.9)	0 (0)	0.364
Colon cancer	4 (0.9)	4 (0.2)	1 (0.7)	1 (0.7)	**0.046**
Skin melanoma	2 (0.4)	10 (0.4)	0 (0)	2 (1.5)	0.247
Basal cell carcinoma	6 (1.3)	9 (0.4)	1 (0.7)	4 (3)	**<0.001**
Lymphoma	0 (0)	4 (0.2)	3 (2)	0 (0)	**<0.001**

*ANOVA or chi-square for continuous and qualitative variables, respectively.

P176

BLOCKADE OF INTERLEUKIN SEVENTEEN (IL-17A) IN HOSPITALIZED COVID-19 PATIENTS – THE BISHOP STUDY

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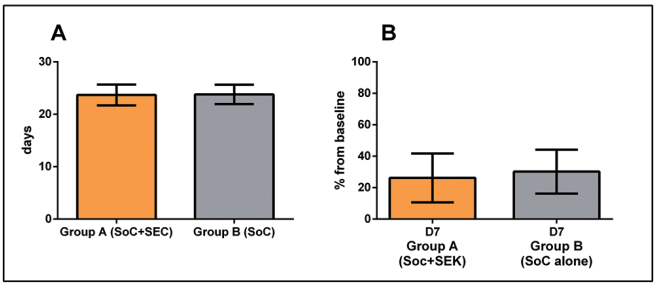
Introduction. Patients with severe COVID-19 seem to have a compromised antiviral response and hyperinflammation. IL-17A plays a major role in protection against extracellular pathogens and neutrophil attraction and activation. We hypothesized that secukinumab, an anti-IL17A monoclonal antibody, could mitigate the deleterious hyperinflammation in COVID-19 even when a dose regimen is unknown.
Methods. BISHOP was an open-label, single-center, phase-II controlled trial. Fifty adult hospitalized Covid-19 patients, confirmed by a positive SARS-CoV-2 RT-PCR, were randomized 1:1 to receive 300mg of secukinumab subcutaneously at day-0 (group A) plus standard of care (SoC: antiviral drugs, antimicrobials, corticosteroids, and/or anticoagulants) or SoC alone (group B). A second dose of 300mg of secukinumab could be administered at day-7 according to staff judgment. Primary endpoint was ventilator-free days at day-28 (VFD-28). Secondary efficacy and safety outcomes were also explored.
Results. An intention-to-treat analysis showed no difference in VFD-28: 23.7 (95%CI 19.6-27.8) in group A *vs* 23.8 (19.9-27.6) in group B, p=0.62; There was also no difference in hospitalization length, intensive care unit demand, incidence of circulatory shock, acute kidney injury, fungal or bacterial coinfections, and severe adverse events. Pulmonary thromboembolism was less frequent in group A (4.2% vs 26.2% p=0.04). There was one death in each group. Viral clearance, defined by the fold change ($2^{-\Delta\Delta CT}$) in upper airways viral RNA, between day-0 and day-7, was also similar: 0.17 (0.05-0.56) in group A *vs* 0.24 (0.10-0.57) in group B.



P176. Fig. 1. A: Ventilator-free days at day-28.
B: Viral RNA clearance in upper airways (fold change from day-0 to day-7).
Columns represents means and error bars represents standard error of mean.

Conclusions. The efficacy of secukinumab in the treatment of Covid19 was not demonstrated. No difference between groups in adverse events and no unexpected events were observed.

Funding. Novartis Brazil supported this research providing expert input in the development of the project, drug supply, data management and monitoring.

P177

UNEXPECTED CLINICAL FINDINGS AS AN EVIDENCE OF THE RELATION OF FIBRODYSPLASIA OSSIFICANS PROGRESSIVA TO AXIAL SPONDYLOARTHRITIS

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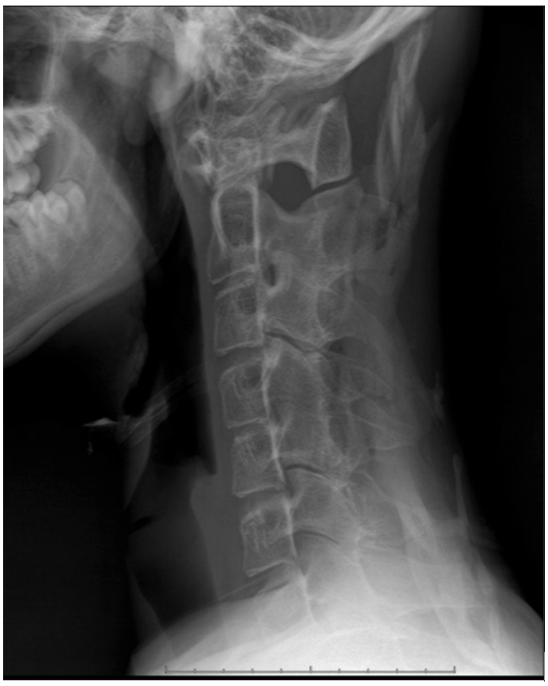
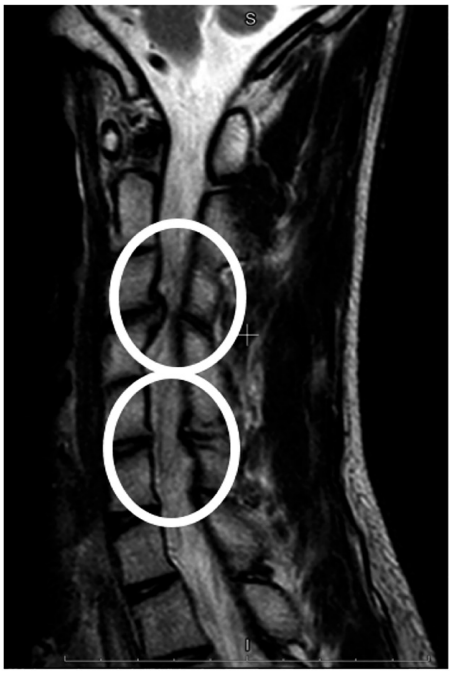
Introduction. Fibrodysplasia ossificans progressiva (FOP) is an extremely rare genetic condition caused by a mutation in the ACVR1 gene. It seems, that FOP and spondyloarthritis (SpA) have some similarities in ossification process and therapy approaches.
Objectives. To analyze the spectrum of FOP clinical manifestations related to SpA and new therapy approaches, including Janus-kinase inhibitor Tofacitinib (TOFA)

Material. 35 patients (pts) (17 males/18 females) with verified FOP for the period from 1998 to 2020 were analyzed. In 9 pts with severe course of FOP TOFA administration were evaluated.
Results. We observed 35 pts with definite diagnosis which verified by "classic" FOP stigmas and confirmed mutation in the ACVR1 gene. Long term follow-up detected a lot of spondyloarthritis-like signs: gradual ankylosis in the peripheral joints in 18 (56.4%), synovitis of large joints in 8 (25%) pts. The most pts at the age after 10-11 years had ankylosis of the facet joints and vertebral bodies by the type of syndesmophytes (Fig. 1), sacroiliitis (by X-ray, CT and MRI). In 9 pts (from 2 to 16 y.o.) with severe course of FOP and steroid addiction we used TOFA (up to 5 mg twice a day) after the approval of the local Ethic Committee. Duration of TOFA therapy is from 6 to 15 months. Compare to previous 6 months, the number of new flares significantly decreased from 8 to 0-1 in average after 6 mos of TOFA treatment. In all 9 pts we stopped the steroids. Drug tolerance was good in all pts, no AE were registered. But despite the absence of new heterotopic ossifications in our first 16 y.o. pt, we found intraskeletal ossification between C3-C4, C5-C7 vertebral bodies, facet joints that leads to subtotal stenosis of spinal canal without any neurological symptoms (Fig. 2). Fortunately,



P177. Fig. 1. Cervical spine X-ray of 17 y.o. pt.



P177. Fig. 2. Cervical spine MRI (STIR–SAG) of 17 y.o. pt.

external heterotopic ossification limits the motion of cervical spine and protects it from severe neurological damage.
Conclusion. Our experience showed that the processes of ossification in FOP has two ways for new born formation – heterotopic and ectopic (syndesmophyte-like). TOFA demonstrated positive effect and safety in children with severe course of FOP, especially in the early stage of inflammation.

P178

EVALUATION OF CARDIOMETABOLIC RISK FACTORS IN PATIENTS WITH ANKYLOSING SPONDYLITIS

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Introduction/Aim. In patients with Ankylosing Spondylitis (AS), the frequency of subclinical atherosclerosis has increased and the risk of cardiovascular events is higher than in the healthy population. It is known that cardiovascular risk factors such as obesity, insulin resistance, lipid disorders and hypertension increase mortality. Apart from known risk factors, endothelial dysfunction and increased carotid intima-media thickness (CIMT) are also considered cardiometabolic risk determinants. In this study, our aim is to compare carotid intima-media thickness (CIMT) and epicardial fat thickness (EFT) values used as subclinical atreosclerosis markers in healthy controls and patients with AS; to examine the possible correlation between disease activity and other cardiovascular risk factors associated with the disease.
Materials and Methods. A cross-sectional study was conducted with 99 AS patients who did not have a diagnosis of cardiovascular disease or known risk factors and 97 healthy individuals who were matched for age and gender. Bath Ankylosing Spondylitis Disease Activity Index (BASDAI) and Bath Ankylosing Spondylitis Functional Index (BASFI) scores were calculated. Standard tissue Doppler Echocardiography was performed to evaluate CIMT and EFT.

P178. Table I. Differences of inflammatory parameters and cardiovascular risk markers according to the groups are shown.

	Controls* (n=97)	Ankylosing spondylitis* (n=99)	*p*-value
Epicardial fat thickness *mm*	0.425 *(0.360-0.491)*	0.540 *(0.411-0.607)*	<0.001
Atherogenic Index of Plasma (AIP)	0.383 *± 0.304*	0.337 *± 0.250*	0.255
CIMT *(right)*	0.380 *(0.300-0.480)*	0.530 *(0.420-0.640)*	<0.001
CIMT *(left)*	0.370 *(0.300-0.470)*	0.510 *(0.420-0.640)*	<0.001
ESR *(mm/h)*	8.00 *(4.00-13.75)*	14.00 *(8.00-29.00)*	<0.001
CRP *(mg/dL)*	<0.1	3.20 *(<0.10-11.20)*	<0.001
HDL *(mg/dL)*	47.0 *(40.0-57.0)*	45.0 *(40.0-53.0)*	0.219
LDL *(mg/dL)*	143.0 *(117.0-171.0)*	131.5 *(117.0-158.0)*	0.176
TG *(mg/dL)*	121.0 *(81.0-160.5)*	98.0 *(81.0-128.0)*	0.014
SBP *(mmHg)*	110.0 *(90.0-110.0)*	110.0 *(100.0-120.0)*	0.007
DBP *(mmHg)*	70.0 *(60.0-70.0)*	70.0 *(60.0-80.0)*	0.003

ESR: erythrocyte sedimentation rate; CRP: C-reactive protein; HDL: high-density lipoprotein; LDL: low-density lipoprotein; TG: triglyceride; SBP: systolic blood pressure; DBP: diastolic blood pressure.
*Descriptive results for continuous variables were expressed as mean and standard deviation or as median and interquartile range, depending on the normality of their distribution.

Results. EFT values were higher in the patient group compared to placebo (p<0.001). CIMT was higher in the patient group for both right (p<0.001) and left (p<0.001) sides (Table I). A low but statistically significant positive correlation was found between PAI and EFT in the patient group. A significant positive correlation was found between CIMT and age, BMI (Body Mass Index), total body fat ratio, abdominal fat ratio, visceral fat ratio, waist circumference and EFT. While there was a significant positive correlation between CIMT and BASFI score, no significant correlation was observed between BASDAI score and disease duration.
Conclusions. This study shows the increased CIMT and EFT in AS patients compared to healthy controls. AS patients with an increased trend in EFT and CIMT thickness can be considered to be in the increased risk group for coronary artery disease. Age, disease duration, disease activity, inflammation biomarkers and obesity can be predicted as accelerating factors for atherosclerosis in patients with AS.

Reference
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THE PROBLEMS OF MAGNETIC RESONANCE TOMOGRAPHY DIAGNOSTICS OF PATIENTS WITH AXIAL SPONDYLO-ARTHRITIS

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Introduction. According to the literature, the diagnosis of axial spondyloarthritis (axSpA) is delayed by an average of 5-9 years. However, even if the necessary research methods are available to verify the diagnosis, rheumatologists often encounter discrepancies between the results of MRI and the clinical manifestations.
Aim of the Study. To determine the frequency of incorrect interpretation of MRI results of the sacroiliac joints (SIJ) by radiologists and rheumatologists in patients with axSpA.
Methods. The study included 80 peoples. The average age is 36.6±7.8 years. The main study group consisted of 65 patients with various stages of sacroiliitis and the presence bone marrow edema and / or signs of ankylosis or erosions on a previous MRI of the SIJ, and 15 healthy volunteers who did not meet the criteria ASAS 2009. MRI results were assessed by 4 specialists: a blinded radiologist, a unblended rheumatologist trained to evaluate MRI of the SIJ, an unblind radiologist who was informed that the study was performed for patients with axial spondyloarthritis, and a blind rheumatologist who did not trained in MRI evaluation of the SIJ.
Results. The results obtained in the evaluation by 4 experts are presented in Table I.
In 32.3% of cases, the assessment of a blinded radiologist was incorrect, and the patient could be misdiagnosed. When examined by a rheumatologist who did not have the skills to perform MRI, signs of sacroiliitis were missed in 60% of cases. Inter-expert reliability indicators between blind and blinded radiographers were 73.8% and had statistical differences in the number of detected and undetected signs of SII (p<0.05). The reliability scores between experts between the non-blind rheumatologist and the radiologist were 97.5% and did not have statistically significant statistical differences (p>0.05).
Conclusions. This study demonstrates the need to further improve the skills of MRI assessment, both in rheumatologists and radiologists, due to the pronounced underestimation of the research results.

P179. Table I.

	Blinded Radiologist	Unblinded Radiologist	Rheumatologist trained in MRI SIJ evaluation	Blindfolded rheumatologist not trained in MRI SIJ
Revealed sacroiliitis in patients diagnosed with axSpA, n=65	44 (67,7%)	64 (98,5%)	62 (95,4%)	26 (40,0%)
Undetected sacroiliitis in patients with a diagnosis of axSpA, n=65	21 (32,3%)	1 (1,5%)	3 (4,6%)	39 (60,0%)
Revealed sacroiliitis in patients not meeting axSpA criteria, n=15	2 (13,3%)	3 (20,0%)	3 (20,0%)	1 (6,7%)
Absence of sacroiliitis in patients not meeting axSpA criteria, n=15	13 (86,7%)	12 (80,0%)	12 (80,0%)	14 (93,3%)

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THE VALIDITY OF THE SIMPLIFIED VERSION OF ANKYLOSING SPONDYLITIS DISEASE ACTIVITY SCORE (SASDAS) IN A RUSSIAN COHORT OF PATIENTS

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Introduction. Nowadays there are a lot of indices and parameters reflecting physical activity, functional, and health status of patients with ankylosing spondylitis (AS). In comparison to other methods of AS activity measurement (ASDAS in particular), SASDAS has considerable advantages such as the simplicity of data calculation meaning there is no need to use a calculator and that a decent amount of time can be saved during daily clinical practice. Our aim was to evaluate the validity of SASDAS in the disease's activity assessment by determining its relationship with other quantitive assessment tools.
Methods. The study included 70 patients with AS (mNYCб 1984), 50 (71%) of them being male. The average age was 40.5±11.4 years, the average disease duration - 17.1±10.0 years, 81.4% of patients were HLA-B27 positive. BASDAI, ASDAS-ESR, ASDAS-CRP, SASDAS-ESR, SASDAS-CRP indices were used to determine the activity of the disease, and BASMI, BASFI were used to assess the functional status. The patient global assessment was performed using a visual analog scale.
Results. Table I shows the data on descriptive statistics and correlation between SASDAS and other parameters and indices indicating the disease activity, functional status, and health status of the patients. The average SASDAS-ERS score was 5.4±4.5 and the average SASDAS-CRP stood for 5.04±4.8.
Conclusions. The results of the study show a strong correlation between SASDAS and ASDAS. They also have a strong relationship with the results of medical tests indicating the changes in blood during the inflammatory process (ESR and CPR rates) meaning this tool is effective in the assessment of the disease activity in patients with AS.

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CLINICAL FEATURES AND OUTCOMES OF COVID-19 PATIENTS WITH CHRONIC INFLAMMATORY RHEUMATIC DISEASE: A RETROSPECTIVE CASE-CONTROL STUDY

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Objective. Severe Acute Respiratory Syndrome (SARS) has a negative impact on the body. The effects of Coronavirus-2 (SARS-CoV-2) infection on the immune system are still being debated. This research aimed to determine the prognosis of coronavirus 19 (COVID-19) in patients with inflammatory rheumatic diseases and to examine the disease's characteristics.
Materials and Methods. In this comparative case-control study, patients with and without chronic inflammatory rheumatic disease diagnosed with COVID-19 were enrolled. Patients, age, gender, smoking status, diagnosis of rheumatic disease, comorbidity, and COVID-19 laboratory data, the presence of any disease symptoms at the time of diagnosis and treatment information gathered. The demographic characteristics of the patients as well as the results of the examination were recorded. The statistical analysis was evaluated using the SPSS 22.0 program. Intergroup comparisons were made using the independent sample t-test and the Chi-square test. (p-value of less than 0.05 was considered significant.).
Results. A total of 106 patients diagnosed with COVID-19 were enrolled in the study. In the group with rheumatological disease, there were 52 (49.1%) patients in the group without 54 (50.9%). The average age of patients with rheumatic disease was 50.5±11.54 years, while the average age of those without rheumatological disease was 50.33±16.92 year. Hospitalization rate was 38 (73%) in patients without rheumatic disease due to COVID-19 compared to 17 (31%) in those without rheumatic disease (p=<0.001). Similarly, the incidence of lung infiltration observed in radiographic examination was higher in those without rheumatic disease (35% vs 60%) (p=0.012). Anosmia 23 (43%), Ageusia 28 (52%), Shortness of breath 18 (33%), Nausea 17 (31%), vomiting 10 (19%), diarrhoea 16 (30%), and myalgia-arthralgia 45 (83%) were statistically higher in patients with rheumatic diseases when it came to covid-19 clinical findings. Laboratory findings of lymphocyte count (median (IQR)= 2(1-2), p=0,025) and white blood cell count (median (IQR)= 7(6-9), p=0,025) were statistically higher in patients with rheumatic diseases. Only neutrophil-lymphocyte ratio (median (IQR)= 2(2-4), p=0.048) was higher in the non-rheumatic group. There were no significant differences in other laboratory values. Hydroxychloroquine 22 (42%), Oseltamivir 10 (19%), Antibiotics 22 (42%), Acetylsalicylic acid 27 (52%) and Supplementary Oxygen 18 (35%) were more common in the group without rheumatic disease. In addition, the number of treatments applied was also higher in the group without Rheumatic Disease (mean±SD=2.88±1.59, p<0.001).
Conclusion. Although covid-19-related symptoms were more common in patients with chronic inflammatory rheumatic disease, the disease course was not severe and hospitalization rates were low.

P180. Table I. Correlation of SASDAS-CRP and SASDAS-ERS with measures of the disease assessment.

Variables	Average	SD (σ)	Median	IQR	Spearman's correlation coefficient (r) between index/parameter and		p-value
					SASDAS-ESR	SASDAS-CRP	
BASDAI	4,97	2,16	5,55	3,10-6,80	0,65	0,68	< 0,05
ASDAS-CRP	3,41	1,28	3,38	2,55-4,29	0,84	**0,94**	< 0,05
ASDAS-ESR	3,27	1,36	3,17	2,33-4,29	**0,96**	0,87	< 0,05
MASES	1,56	1,85	1,00	0,00-2,00	0,44	0,44	< 0,05
patient global assessment	5,67	2,47	6,00	4,00-8,00	0,47	0,49	< 0,05
BASFI	4,86	2,59	5,10	2,50-7,00	0,63	0,61	< 0,05
BASMI	4,33	2,66	4,00	2,00-6,00	0,35	0,36	< 0,05
ESR (mm/Hr)	35,07	40,51	18,00	7,00-46,00	0,90	0,73	< 0,05
CRP (mg/L)	28,75	41,93	10,80	2,70-42,00	0,76	0,89	< 0,05
Age (years)	40,50	11,38	38,00	32,00-48,00	0,095	0,10	< 0,05
Disease duration (years)	16,28	9,35	15,00	9,00-21,00	0,31	0,29	< 0,05
Morning stiffness (minutes)	54,57	42,73	50,00	15,00-80,00	0,41	0,43	< 0,05

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