Objectives: To determine the serum levels of Dkk-1 and their relationship with active and chronic changes in SIJ on MRI, indices and laboratory parameters of disease activity and functional status in SpA patients.

Methods: This study includes 105 SpA patients (89.5% HLA B27 positive) and 15 healthy age- and gender- matched controls. Dkk-1 serum levels (pmol/l) were conducted by ELISA. Active inflammatory lesions in SIJ were evaluated by Spondyloarthritis Research Consortium of Canada (SPARCC) MRI SIJ score (0-72, n=69) and chronic changes by Danish scoring method (0-48). Bath Ankylosing Spondylitis Disease Activity Index (BASDAI, mm), Bath Ankylosing Spondylitis Functional Index (BASFI, mm), C-reactive protein (CRP, mg/l) and erythrocyte sedimentation rate (ESR, mm/hr) were recorded. Statistical analysis was performed using Spearman correlation coefficient, Student t-test and receiver operating characteristic (ROC) curves.

Results: Mean value ($M \pm \sigma$) of Dkk-1 was 45.1 ± 36.3 . The mean value of indices and laboratory parameters were: BASDAI – 44.5 ± 19.3 , BASFI – 31.1 ± 23.1 , CRP – 20.6 ± 31.3 , ESR – 26.8 ± 22.0 . SPARCC score was 22.2 ± 12.0 , Danish score – 19.5 ± 9.83 . Dkk-1 serum levels were lower ($P < 0.01$) in SpA patients compare with the controls. ROC analysis indicated that the AUC for Dkk-1 is 0.88 ± 0.05 ($p < 0.001$), which indicates strong capacity to differentiate groups of SpA patients with healthy controls (sensitivity - 87%, specificity - 79%).

There was significant negative correlation between Dkk-1 with chronic lesions in SIJ by Danish score ($r = -0.250$, $p = 0.046$). Dkk-1 showed positive correlation with CRP ($r = 0.216$, $p = 0.028$).

There was no significant correlation of serum Dkk-1 levels with SPARCC, BASDAI, BASFI and ESR.

Conclusion: Dkk-1 levels are significantly lower in SpA patients compare with healthy controls and has a strong association with SpA. Dkk-1 significantly negatively correlates with chronic changes in SIJ on MRI, that may confirm that deficiency of Dkk-1 could increase progression of pathological changes in SIJ. Dkk-1 correlates only with CRP level, but none of the other indices and laboratory parameters of disease activity and functional status.

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THU0405

PREVALENCE OF FIBROMYALGIA IN INFLAMMATORY BOWEL DISEASE (IBD) PATIENTS: A SINGLE CENTRE OBSERVATIONAL PROSPECTIVE STUDY

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Background: Joint pain is frequently reported by IBD patients and can be associated to extra-intestinal manifestations of diseases or adverse events associated to anti-TNF or vedolizumab therapy and also associated with other non-SpA-disease related factors including mechanical/degenerative problems. An appropriate rheumatological referral pathway is crucial to drive therapeutic strategy in case of concomitant spondyloarthritis (SpA). Fibromyalgia is a frequent cause of chronic pain that needs to be identified in order to not overestimate the prevalence of SpA in IBD patients

Objectives: The aim of the study was to assess the prevalence of FM in a cohort of IBD outpatients

Methods: Consecutive patients of the IBD Unit coming for a routine visit were screened by a rheumatologist in order to identify cases presenting the 2010 ACR criteria for FM or ASAS criteria for SpA (1,2). Patients affected by other rheumatic conditions such as rheumatoid arthritis and crystal arthritis were excluded from the study. The rheumatological assessment included a 66 swollen joint count (SJC) and 68 TJC, MASEI, LEI and the fibromyalgia tender points examination. The patient completed BASDAI and BASFI on the day of clinical evaluation. Imaging exams (MSK ultrasound, MRI) and HLA-B27 determination were requested if needed for diagnostic confirmation

Results: Between January to May 2018, 210 patients were enrolled in the study and 181 completed the clinical and imaging/laboratory assessment if requested for diagnostic purpose. examination. A total of 44 patients (24.3%) in the IBD cohort met the ACR 2010 criteria for FM. 34 patients (18.8%) presented the criteria for primary FM, and 10 patients (5.5%) presented FM and SpA. Of note FM patients presented LEI; BASDAI and BASFI scores higher than SpA patients

Conclusion: FM is a common comorbidity in IBD patients and can be associated to SpA. An appropriate rheumatological referral is crucial to exclude a concomitant SpA and to manage FM

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THU0406

ULTRASONOGRAPHIC INVOLVEMENT OF THE ANTERIOR CHEST WALL IN SPONDYLOARTHRITIS, A FIVE YEARS FOLLOW UP STUDY

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Background: Spondyloarthritis is characterized by inflammatory back pain. Anterior chest wall pain is common and a previous study reported a prevalence à 37% of ultrasonographic lesions of this anatomical region [1].

Objectives: The objective of this study is to evaluate, in patient with Spondyloarthritis, the prevalence of ACW ultrasonographic lesions after a follow up of 5 years and to identify factors associated with the development of new lesions.

Methods: This a monocentric and prospective study including patients with Spondyloarthritis meeting the ASAS 2009 criteria. Patients were followed during five years. ultrasound B mode and power Doppler examination of the two sternoclavicular joint and the manubrio-sternal joint were performed by the same two examiners at baseline and five years later. The presence of erosion, synovitis, ankylosis, power Doppler signal, joint effusion and bone margin narrowing were assessed. Clinical characteristics and disease activity were evaluated at 5 years.

Results: In the 136 patients at baseline, 58 patients were evaluated 5 years later. The mean age was 48.2 ± 11.9 years old, with 86% male and 89% HLA B27. 60.3% of these patients had a history of pain of the ACW. The prevalence of ultrasonographic involvement of the ACW was 34% at baseline and 67.2% five years later. The most frequent lesions were ankylosis of the manubriosternal joint (38%) and erosions of the sternoclavicular joint (29%). At 5 years, patients with lesions of the ACW are significantly older (51.4 ± 11.5 VS 41.5 ± 9.98 , $p < 0.01$). There were no differences concerning the presence of HLA B27 and the presence of a radiographic sacroiliitis or syndesmophytes. Among these 58 patients, 31 (53%) developed a new lesion of the ACW. There is a statistically significant association between a higher ASDAS CRP and new lesions of the ACW (1.86 ± 1.07 VS 3.0 ± 2.17 $p < 0.01$) and with the level of CRP (5.34 ± 7.85 VS 16.2 ± 35 , $p = 0.035$). Baseline ASDAS CRP is not a predictor of new chest wall lesions prior to 5 years of age. Nevertheless, poor control of disease activity is associated with the development of new lesions. Patients with new lesions have an ASDAS CRP score that increase (0.882 ± 2.48) between 2013 and 2018, while patients with no new lesions have an ASDAS CRP score that decrease (-0.641 ± 1.50) between 2013 and 2018.

Conclusion: The prevalence of ultrasonographic lesions of the ACW increased after 5 years of follow up. The development of new lesions is associated with a higher disease activity, a higher CRP and an increased disease activity over 5 years.

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THU0408

ACHIEVING DISEASE REMISSION IN AXIAL SPONDYLOARTHRITIS: A TWO-CENTRE RETROSPECTIVE ANALYSIS OF RELEVANT BASELINE PATIENT CHARACTERISTICS

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Background: ASAS-EULAR Axial Spondyloarthritis (AxSpA) guidelines recommend that AxSpA treatment should be guided according to a pre-defined target¹, following increasing evidence that persistent, uncontrolled inflammatory disease activity results in long-term damage and poor outcomes^{2,3}. Despite this, there remains no single definition for "remission" in AxSpA.

Objectives: To identify baseline characteristics of individuals achieving AxSpA disease "remission" 6 months after initiation of biologic disease-modifying therapy (bDMARD).

Methods: A two-centre retrospective cross-sectional analysis was performed, of AxSpA patients receiving their first bDMARD at the Royal National Hospital for Rheumatic Diseases, Bath, and Norfolk and Norwich University Hospital, Norwich. AxSpA "remission" was defined as Bath Ankylosing Spondylitis Disease Activity Index (BASDAI) <1; Bath Ankylosing Spondylitis Functional Index (BASFI) <3.8 or serum C-reactive protein (CRP) <5. A non-parametric (2-tailed Chi-Square) test was applied to identify differences in baseline characteristics which distinguished those patients achieving "remission" after 6 months bDMARD treatment from others.

Results: 538 patients were included. Sufficient BASDAI data was available for 440, CRP data for 448 and BASFI data for 354. Overall, 42 (9.5%) patients achieved BASDAI <1; 275 (61.4%) achieved CRP <5 and 206 (58.2%) achieved BASFI <3.8. The differences in baseline characteristics of individuals achieving these AxSpA "remission" outcomes compared with others are summarised in Table 1, with statistically significant results at the 95% level highlighted.

Abstract THU0408 – Table 1. p-values of 2-tailed non-parametric test comparing baseline characteristics of individuals achieving AxSpA "remission" outcomes after 6 months versus others.

Baseline characteristics	p-values		
	BASDAI <1 N=42/440	CRP <5 N=275/448	BASFI <3.8 N=206/354
Lower mean age at axSpA diagnosis	0.04	0.78	0.09
Less mean time from diagnosis to bDMARD initiation	0.56	0.00	0.66
Lower median baseline BASDAI	0.35	0.39	0.00
Lower median baseline CRP	0.01	0.00	0.67
Lower median baseline BASFI	0.08	0.04	0.00
Lower median baseline BASMI	0.73	0.44	0.00
HLA B27+	0.21	0.06	0.10
Male sex	0.87	0.52	0.62

Conclusion: Our self-defined measures of BASDAI and CRP remission were most achievable in our cohort for patients with lower CRP and less functional limitation before bDMARD initiation. This may reflect remission being more achievable when treating milder disease. Functional "remission" was influenced by baseline BASMI and BASDAI in our cohort, highlighting the importance of both disease activity and pre-existing structural damage on functional outcomes. Further work could include longitudinal follow-up of outcomes in these patients to establish the relevance of targeting AxSpA remission. "BASDAI remission" was very narrowly defined in this study, and this analysis could be repeated with a more achievable target eg BASDAI <3.

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THU0409

PATTERN AND INFLUENTIAL FACTORS IN PROMOTING TREAT-TO-TARGET (T2T) FOR FOLLOW-UP ANKYLOSING SPONDYLITIS (AS) PATIENTS WITH A RHEUMATOLOGIST-PATIENT INTERACTIVE SMART SYSTEM OF DISEASE MANAGEMENT (SSDM): A COHORT STUDY FROM CHINA

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Background: Ankylosing Spondylitis Disease Activity Score (ASDAS) is adopted to evaluate the degree of disease activity and the inflammatory response in AS patients. ASDAS score ≤ 1.3 represents inactive disease status and achievement of T2T.

Objectives: To evaluate the patterns of T2T and related influential factors among AS patients after applying SSDM in the real world.

Methods: SSDM is a mobile application for disease management. Patients were trained to master SSDM by healthcare professionals and to conduct ASDAS self-assessments. Patients were also required for repeating self-evaluation after leaving the hospital. After entry by patients, data can be synchronized to the SSDM terminal of authorized rheumatologists.

Results: From Jan 2015 to Jan 2019, 667 AS patients across China were followed up for more than 6 months through SSDM. The results at baseline and in final follow up were summarized in Table 1. The rate of T2T achievers were 28.49% (190/667) at baseline, and improved significantly to 41.38% (276/667) after 6 months follow up, p<0.01. Among T2T achievers at baseline, 64.21% (122/190) maintained T2T, 35.79% (68/190) relapsed. Of patients who didn't achieve T2T at baseline, only 32.29% (154/477) of the other AS patients achieved T2T after 6 months follow up. We further analyzed the impact of the times of self-assessment for ASDAS on T2T. The patients were stratified according to their frequency of self-assessment: more than 3 times, less than or equal to 3 times self-assessments within 6 months follow-up. Results show that the more frequent of the self-assessment, the higher improvement of T2T rate (19.34% vs. 8.40%, Table 2). A linear regression analysis of variables in statistics and parameter estimation was conducted by least square method. The improvement of T2T rate(y) was positively correlated with times of self-assessment for ASDAS(x) independently (Figure 1).

Conclusion: Significant improvement was observed under applying SSDM through empowering AS patients. After proactive disease management via SSDM for more than 6 months, Patients with ASDAS≤1.3 score at baseline had a significantly higher retention rate of disease activity. The patients who performed more self-assessments through SSDM had lower probability of relapse and higher rate of T2T. SSDM is a valuable tool for long term follow-up through empowering patients.