of the IBP criteria for diagnosis of IBP according to the local rheumatologist, diagnosis of axial SpA by local rheumatologist, diagnosis of axial SpA by central assessment, and concordant diagnosis of axial SpA by both local and central assessment.

**Results:** We recruited 185 patients (48.6% male, mean age 27.6 years, mean back pain duration 7.0 years) with iritis (30.3%), psoriasis (17.3%), Crohn's (38.4%) and ulcerative colitis (18.9%). IBP and/or axial SpA were considered present in 65.2% and 47.3%, respectively, of all patients by the local rheumatologist. By central assessment axial SpA was considered present in 32.7% while amongst patients with a concordant diagnosis by both local and central assessment 37.2% were considered to have axial SpA. Sensitivity was comparatively high for all IBP criteria but specificity was poor. The Berlin criteria consistently performed best while the Calin criteria consistently performed worst (Table).

| Gold standard | IBP criteria | Sensitivity (%) | Specificity (%) | LR+ | LR− |
|---|---|---|---|---|---|
| IBP by local rheumatologist | ASAS | 83.8 | 58.8 | 2.03 | 0.28 |
| | Berlin | 88.9 | 76.5 | 3.78 | 0.15 |
| | Calin | 94.0 | 37.3 | 1.50 | 0.16 |
| Axial SpA by local rheumatologist | ASAS | 82.9 | 44.9 | 1.50 | 0.38 |
| | Berlin | 84.3 | 51.3 | 1.73 | 0.31 |
| | Calin | 90.0 | 19.2 | 1.11 | 0.52 |
| Axial SpA by central assessment | ASAS | 80.0 | 37.5 | 1.28 | 0.53 |
| | Berlin | 80.0 | 38.9 | 1.31 | 0.51 |
| | Calin | 94.3 | 20.8 | 1.19 | 0.27 |
| Axial SpA by central and local assessment | ASAS | 86.2 | 44.9 | 1.56 | 0.31 |
| | Berlin | 86.2 | 51.0 | 1.76 | 0.27 |
| | Calin | 93.1 | 22.4 | 1.20 | 0.31 |

**Conclusions:** IBP criteria lack specificity for rheumatologist diagnosed IBP or axial SpA but the Berlin criteria have consistently better performance.

**Disclosure of Interest:** None declared

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## SAT0429 THE PERFORMANCE OF MAGNETIC RESONANCE IMAGING USING THE VIBE TECHNIQUE TO DETECT STRUCTURAL CHANGES IN PATIENTS WITH EARLY AXIAL SPONDYLOARTHRITIS IN COMPARISON TO CONVENTIONAL RADIOGRAPHY AND COMPUTED TOMOGRAPHY

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**Background:** Magnetic resonance imaging (MRI) is the gold standard for detection of inflammation in the sacroiliac joints (SIJ) of patients (pts) with axial spondyloarthritis (axSpA), while for chronic, structural changes (erosions, sclerosis and ankylosis) conventional radiographs (CR) and computed tomography (CT) are often preferred. The 3D volumetric interpolated breath-hold sequence (VIBE) is an MRI technique, easy to acquire in daily practice, that can visualize cartilage especially well because of its good contrast to synovial tissue.

**Objectives:** To compare the ability of the VIBE technique to detect structural changes in comparison to CR and CT in SIJs of axSpA patients in relation to symptom duration and age.

**Methods:** Complete sets of MRI (T1 and VIBE techniques), CT and CR of SIJs of 109 AS patients were available. Two readers evaluated all images independently, blinded to demographic data and in separate sessions for each technique. The assessment of lesions was performed based on SIJ-quadrants (SQ) to score erosions, sclerosis and ankylosis (SIJ-halves). Lesions were counted as positive if both readers were in agreement. Comparisons between MRI techniques were performed by Wilcoxon-test. Linear regression analysis was used to evaluate the influence of age and disease duration on the occurrence of different structural lesions by modeling the differences in the number of lesions in different imaging techniques as dependent variable.

**Results:** The mean age ± standard deviation was 45.3±13.9 years (y), 55 pts (50.5%) were aged ≤45y, 67.9% male, 82.3% HLA-B27+, 58 pts (53.2%) had a disease duration ≤3y. Agreement for positive and negative findings between MRI and CT was generally high (>80% of SQs in all subgroups) and agreement between readers for all techniques and lesion types was excellent (ICC=0.979–0.997).

Overall, MRI detected significantly more SQ with erosions in pts ≤45y (n=134) and in pts with disease duration ≤3y (n=125) as compared to CT (n=91, p=0.002 and n=90, p=0.003, respectively) and in pts with age ≤45y (n=61, p<0.001) as compared to CR, while there were no differences between MRI and CT in pts. >45y or disease duration >3y. Linear regression analysis showed that MRI was superior in the detection of erosions in younger ages as compared to CT (B=0.032, p=0.001).

However, CT detected significantly more SIJ halves with ankylosis in all subgroups and more SQ with sclerosis in pts with disease duration ≤3y (n=64 vs. n=37, respectively, p=0.006), and it also detected more SQ with sclerosis in pts >45y (n=67 vs. n=38, p=0.001) and disease duration >3y (n=64 vs. n=40, p=0.003) as compared to MRI, while no differences were found in the assessment of ankylosis.

**Conclusions:** MRI in the T1 and VIBE technique is more sensitive in the detection of erosions as compared to CT and CR in axSpA pts with short disease duration and younger age. This is due to its ability to identify structural damage in the SIJ cartilage that has not yet extended to the underlying bone. These differences are not found in pts with longer disease duration or older age. This data suggests a more prominent role for MRI also for the early detection of structural changes in the SIJ of axSpA pts.

**Disclosure of Interest:** None declared

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## SAT0430 THE RELATIONSHIP BETWEEN EXOSOMAL MIRNA21-5P AND ANKYLOSING SPONDYLITIS

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**Background:** Ankylosing Spondylitis (AS) affects human health seriously, which is difficult to diagnose in the early stages. It is reported that MicroRNAs (miRNAs) may serve as novel biomarkers for AS. Exosome can function as vehicles to deliver miRNAs in body fluids including saliva and plasma. Our previous study shows that exosomal miRNA21–5P is higher expressed in AS patients, compared with healthy subjects. However, the relationship between exosomal miRNA21–5P and AS has yet to be determined.

**Objectives:** The aim of the present study is to explore the relationship between exosomal miRNA21–5P and AS.

**Methods:** AS patients who fulfilled the modified New York criteria were enrolled for this study. Healthy subjects were also enrolled as control group. BASDAI, BASFI, C-reactive protein (CRP) and erythrocyte sedimentation rate (ESR) were evaluated. Quantitative reverse-transcription PCR (qRT-PCR) was used to confirm the expression of exosomal miRNA21-5P, and receiver-operator characteristic (ROC) curve was used to evaluate the diagnostic value of exosomal miRNA21-5P for AS. According to the cut off value, AS patients were divided into exosomal miRNA21–5P low value group (<cut off value) and exosomal miRNA21-5P high value group (≥cut off value), and the difference of AS patient's clinical characteristics between the two group were explored.

**Results:** Twenty healthy subjects and 38 AS patients were enrolled in the study. The qRT-PCR results indicated that the expression level of exsomal miRNA21-5P in AS patients was (2.041±0.975) times higher than that of healthy subjects. ROC curve analysis showed that exsomal miRNA21-5P had significant diagnostic value for AS with the AUC of 0.809 (CI95%: 0.691–0.921). In addition, the cut off value was 1.310, with the specifity of 80.0% and sensitivity of 76.32%. According to the cut off value of exsomal miRNA21–5P, AS patients were divided into the low exsomal miRNA21-5P group (<1.310) and the high exsomal miRNA21-5P group (≥1.310). Among the 38 AS patients, 12 cases were in the low exsomal miRNA21–5P group and 26 cases were in the high exsomal miRNA21-5P group. Comparations of the clinical characteristics of the two groups showed that BASDAI, BASFI, CRP and ESR were significantly increased in exsomal miRNA21-5P high value group.

**Conclusions:** Exsomal miRNA21-5P was significantly increased in AS patients, which may be used as a biomarker for AS.

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## SAT0431 THE RELATIONSHIP OF SEASONAL VARIATION, THE ONSET AND THE SYMPTOMS OF ANKYLOSING SPONDYLITIS MEASURED BY SELF-ADMINISTRATED QUESTIONNAIRES IN CHINESE PATIENTS

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**Background:** Ankylosing spondylitis (AS) is a chronic inflammatory disease which mainly involves sacroiliac joints, resulting in pain, functionally limitation and even less life expectancy. Seasonal variation was found in rheumatoid arthritis and gout [1,2]. No reports had been focused on seasonal variation of AS onset or symptoms in AS patients.

**Objectives:** Our study was to investigate the relationship of seasonal variation and the onset and symptoms of AS in Chinese patients.

**Methods:** Adult AS patients diagnosed with the modified New York criteria for AS whose disease duration was over 2 years were enrolled from several provinces all over China. Participants were required to complete a set of questionnaires and examinations, including demographic and clinical information. Questions included "in which season(s) did you have the initial symptoms of AS", and "in which season(s) were the symptoms aggravated/improved". The Statistical Package for Social Sciences (SPSS) software version 21 was used for all data management and analysis.

**Results:** Of all the 859 AS patients, 75.1% were male patients. 47.8% were married. Mean age was 30.60±9.50 years. Mean disease duration was 7.43±6.92 years. 27.7% of the patients had an onset of the disease in summer, while the lowest incidence happened in autumn (12.5%, p<0.05). 29.6% of the patients could not recall the exact season. 29.5% of the patients' symptoms got worse in winter,

while only 2.6% of the patients felt worse in autumn, in comparison of 10.3% in spring and 6.0% in summer. 24.4% of the patients felt relieved in summer, while surprising, only 2.7% felt better in spring, with a lowest rate in the four season. However, 48.1% of the patients believed there were no seasonal differences.

**Conclusions:** More patients had an onset of AS in summer, compared to other seasons. More patients felt worse in winter and better in summer. Nearly half of AS patients considered that there were no seasonal differences in the deterioration or improvement of the symptoms.

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### SAT0432 CORRELATION BETWEEN THE SPINAL MRI FINDINGS AND NEW BONE FORMATION FACTOR (DKK-1)I N PATIENTS WITH SPONDYLOARTHRITIS

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**Background:** Recent prospective data suggest that spinal inflammatory damage in patients with ankylosing spondylitis will eventually convert into fat. In these complex inflammatory lesions, bone formation and inflammation are not synchronized. The molecular basis responsible for new bone formation in SpA patients is still unclear. Serum level of dickkopf-1 (Dkk-1), the natural inhibitor of WNT protein, is a main factor in limiting new bone formation.

**Objectives:** In this study, we aimed to assess the correlation between the secreted protein Dkk-1 and abnormal findings on spinal MRI through a prospective study of SpA.

**Methods:** Thirty patients with active axial SpA (axSpA) who fulfilled the ASAS axSpA criteria were enrolled. All patients received an injection of recombinant human TNF receptor-antibody fusion protein (YISAIPU) at a dosage of 50 mg/week for 6 months. Patient report outcome measure questionnaires and physical examination, blood tests were completed according to the study protocol. All patients were scored for bone marrow edema and fat infiltration on spinal MRI imaging. The spinal MRI imaging of the patients before and after the treatment were blindly reviewed and scored using the SPARCC scoring system by two individuals who were familiar with the system.

**Results:** There are 28 male and two female patients (mean age: 31±5.5 yrs, range: 22–41; mean duration: 93.5±75.8; HLA-B27(+): 96.7% (29/30)). In patients who finished the 6 month anti-TNF treatment, the ESR, CRP, BASDAI, BASFI, BASMI and ASDAS-CRP were significantly decreased ($P<0.01$). Serum Dkk-1 concentration was also significantly decreased ($P<0.05$), as were the edema measurements of spinal bone marrow ($P<0.05$), but not with the before and after treatment differences in fat infiltration scores (p>0.05). (Table1). Correlation analysis found that serum Dkk-1 concentration before treatment was significantly correlated with spinal bone marrow edema scores ($P<0.01$). The differences in serum Dkk-1 levels significantly correlate with differences in spinal MRI bone marrow edema scores after treatment ($P<0.05$).(Figure 1 and 2).

Table 1. Clinical indexes, serum DKK-1 and spine imaging scores before and after treatment

| | Before treatment | After treatment |
|---|---|---|
| ESR (mm/h) | 23.78±22.27 | 5.03±4.63** |
| CRP (mg/dl) | 2.59±2.90 | 0.40±0.52** |
| BASDIA | 6.23±1.29 | 2.52±1.84** |
| BASFI | 5.78±1.44 | 2.69±1.72** |
| BASMI | 2.46±1.91 | 0.69±1.21** |
| ASDAS-CRP | 3.77±0.83 | 1.58±0.74** |
| DKK-1 (ng/ml) | 98.23±113.41 | 51.88±41.90* |
| Spine-BME | 20.27±23.53 | 6.08±8.09** |
| Spine- FAT | 10.08±10.38 | 13.81±15.34 |

*p<0.05; ** p<0.01.

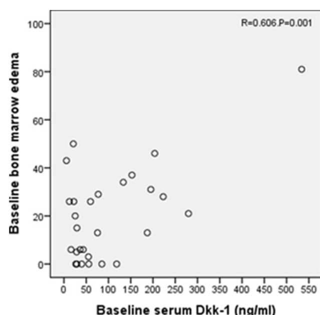


Figure 1. Serum Dkk-1 level is correlated with bone marrow edema at baseline

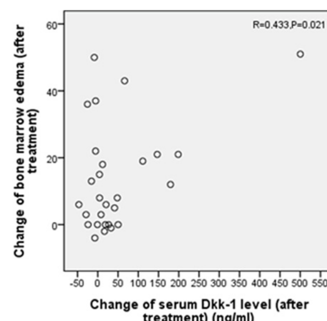


Figure 2. After treatment, the change of serum Dkk-1 level is correlated with change of bone marrow edema

**Conclusions:** Spinal marrow edema may have a role in predicting new bone formation in the spine, since the change of serum Dkk-1 level is correlated with change of spinal marrow edema. And Dkk-1 may participate in the molecular basis of the TNF inhibitor's blockade of new bone formation. Further research is needed on patients who have received long-term TNF antagonist treatment to find the time points when serum Dkk-1 level reaches a stabilized plateau. Increased knowledge in this area will be helpful when assessing a predictive marker for the timing of treatment withdrawal.

**Disclosure of Interest:** None declared

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SATURDAY, 17 JUNE 2017

## Psoriatic arthritis

### SAT0433 ANTI-TNF TREATMENT IN RHEUMATOID ARTHRITIS AND ANKYLOSING SPONDYLITIS PATIENTS IS ASSOCIATED WITH A STRONG INCREASE OF PALMOPLANTAR PUSTULOSIS BUT NOT OF PSORIASIS VULGARIS

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**Background:** The prevalence of paradoxical psoriasis developed with biological use is already studied. However, none of these studies discriminate between psoriasis vulgaris (PV) and palmoplantar pustulosis (PPP), while these might be different entities (1). The prevalence in general population is 2–4% for PV and 0.01–0.05% for PPP (1–3). Moreover, most reports in the literature imply only a role for anti-Tumor necrosis factors (anti-TNF), although, a few cases described paradoxical psoriasis in patients treated with biologicals other than anti-TNF.

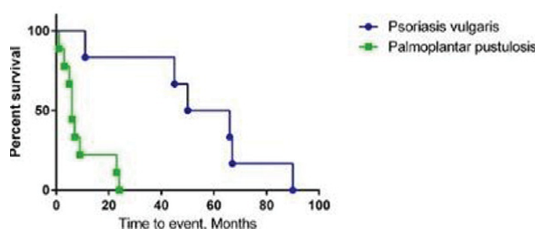
**Objectives:** To study the prevalence and incidence density of paradoxical psoriasis and palmoplantar pustulosis in patients with rheumatoid arthritis (RA) and ankylosing spondylitis (AS) treated with biological therapy. Second to investigate differences between paradoxical psoriasis and palmoplantar pustulosis.

**Methods:** Data were collected from the observational cohorts of AS and RA patients. 1499 consecutive patients were included for calculating prevalence and incidence density. Incidence density is calculated per 1000 person years. For calculating differences, only biological naïve patients (n=830) were included. Kaplan Meier curve was used to show the difference in time in onset.

**Results:** In all, 13 cases of PPP and 16 cases of PV were observed in both the RA as AS cohorts. In AS patients 1.73% developed PPP and 1.38% PV. In RA patients respectively 0.66% and 0.99%.

The incidence density of PPP in RA was 2.1 (95% CI 0.7–3.6), for PV 3.2 (95% CI 1.4–5.0). In AS, 4.7 (95% CI 0.6–8.8) for PPP and 3.7 (95% CI 2.3–12.7) for PV. Although not statistically significant, PPP was more prevalent in adalimumab (0.94%) compared to etanercept (0.34%). In contrast, PV occurs in 0.53% in adalimumab and 0.92% in etanercept treated patients. PPP was only observed in anti-TNF, PV was also observed in 1 patient treated with tocilizumab and 1 with abatacept. A difference was observed in the time to event, with a median of 6 months (IQR 4–16 months) for PPP and 50 months (IQR 11–67 months) for PV; p=0.003 (figure 1). Discontinuation of biological treatment was indicated in 80% of the PPP patients and 18.2% PV patients.

**Figure 1. Difference between patients who developed psoriasis vulgaris versus palmoplantar pustulosis on biological therapy.**




**Conclusions:** Our findings show that biological therapy in patients with RA or AS is associated with a 13 to 35 fold increase in prevalence of PPP. While the prevalence of biological-associated PV is lower than the prevalence of PV in the general population. In this study PV and PPP are different from each other regarding prevalence, time to onset and consequences for biological treatment, and therefore should be considered as separate entities.

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