Background: to evaluate the glycosaminoglycan (GAG) content of lumbar intervertebral discs (IVD) in patients with ankylosing spondylitis (AS) using GAG chemical exchange saturation transfer (gagCEST).

Objectives: Does local GAG content in non-degenerative IVDs measured by gagCEST MRI differs between AS patients and HC?

Methods: 195 lumbar IVD of 15 patients with AS (mean age 50 ±10 years) and 25 healthy control patients (HC) were prospectively examined with 3 T magnetic resonance imaging (MRI). MRI protocol contained morphological T2 weighted (T2w) images to grade IVD according to the Pfirrmann classification and biochemical imaging with gagCEST to calculate a region of interest (ROI) of the nucleus pulposus (NP) and annulus fibrosus (AF). Prior to statistical testing of gagCEST effects in patients and HC, IVD were classified according to Pfirrmann.

Results: Significantly lower gagCEST values of NP and AF were found in non-degenerative IVD (Pfirrmann 1 and 2) of AS patients compared to HC (NP: 1.88 % ±1.21% vs. 3.38 % ±1.71%; p<0.01; confidence interval (CI): 0.89%/2.11%. AF: 1.11 % ±1.07 % vs. 1.96 % ±1.23 %; p<0.01; CI 0.39%/1.3%).

Conclusion: GagCEST analysis of morphologically non-degenerative IVDs in T2w images showed significantly lower gagCEST values in patients with AS in the NP and AF compared to HC. Our results potentially allow for the detection of GAG loss prior to morphological degeneration.

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AB0723

SERUM LEVELS OF TRANSFORMING GROWTH FACTOR BETA1 AND SCLEROSTIN AND THEIR CORRELATIONS WITH MRI AND LABORATORY FINDINGS IN PATIENTS WITH SPONDYLOARTHRITIS

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Background: There is an actual demand for searching the biomarkers which could reflect disease activity and MRI changes in sacroiliac joints (SIJ) and spine in patients with spondyloarthritis (SpA). Transforming growth factor-beta 1 (TGF-β1) is a cytokine that suppresses inflammatory cytokines but could augment inflammation [1]. A very recent study suggests a possible role of sclerostin (Scl) in the identification of SpA patients, but further studies are needed to prove its role as a disease activity and progression biomarker [2]. In general, the role of these biomarkers in SpA patients remains unknown due to controversial data about their levels in patients with SpA in comparison with healthy subjects and correlations with SpA activity.

Objectives: This study was designed to determine TGF-β1 and Scl serum levels and its correlations with changes in spine and SIJ on MRI imaging, laboratory parameters and indices of disease activity and functional status in SpA patients.

Methods: 102 patients with SpA (mean age (M±σ) - 38.1±11.2, 67 males and 35 females) and 15 healthy age- and gender-matched controls were included in the study. C-reactive protein (CRP, mg/l) and erythrocyte sedimentation rate (ESR, mm/hr) were evaluated as inflammatory markers. Disease activity and functional impairment were moderate to high, mean Ankylosing Spondylitis Disease Activity Score (ASDAS-CRP) was 3.07±1.07, Bath Ankylosing Spondylitis Disease Activity Index (BASDAI, mm) - 45.3±18.6, Bath Ankylosing Spondylitis Functional Index (BASFI, mm) - 31.7±22.9.

Serum levels of TGF-β1 (pmol/l) and Scl (pmol/l) were measured by ELISA. Spine MRI images were assessed for active inflammatory lesions using Berlin method (0-69, n=19). Active and chronic MRI changes in SIJ were scored by Spondyloarthritis Research Consortium of Canada (SPARC) score (0-72) and Danish scoring method (0-48), respectively (n=67). Spearman correlation coefficient and Student t-test were used for statistical analysis.

Results: Mean value of laboratory and MRI parameters were: CRP – 20.9±31.5, ESR – 27.1±22.1, Berlin score was 3.93±3.87, SPARC – 22.5±11.9, Danish score – 20.5±8.3.

Patients with SpA had significantly lower serum levels of biomarkers compared with the healthy controls: 285.3±186.9 vs 443.2±84.3, p=0.0017 - for TGF-β1, and 21.7±13.5 vs 31.2±10.5, p<0.001 - for Scl.

There were significant positive correlations for TGF-β1: strong - with active spine lesions by Berlin method (r=0.810, p<0.01), and weak - with CRP level (r=0.224, p=0.024). There were no correlations with MRI inflammatory changes in SIJ. Scl negatively correlates with inflammatory changes in SIJ.

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AB0724

IS THERE A LINK BETWEEN RADIOGRAPHIC SACROILIITIS AND HIP INVOLVEMENT IN SPONDYLOARTHRITIS?

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Background: Hip involvement is a common feature in spondyloarthritides (SpA). Whether the hip is part of the axial or appendicular skeletal is still a matter of discussion.

Objectives: We aimed to assess the relationship between sacroiliitis, spinal and hip involvement in SpA.

Figure 1. Comparison of morphological T2 weighted (T2w) images to grade IVD according to the Pfirrmann classification and biochemical imaging with gagCEST between HC (A and C) and AS patients (B and D) showing significant lower GAG levels in AS patients.
FACTORS ASSOCIATED WITH RADIOGRAPHIC SPINE INVOLVEMENT IN SPONDYLOARTHRITIS

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Background: Spondyloarthritis (SpA) is characterized by significant radiographic changes in the spine. The structural spine damage can be assessed using several scorings such as the Bath AS Radiology Index (BASRI) and the modified Stoke Ankylosing Spondylitis Spine Score (mSASSS).

Objectives: We aimed to identify factors associated with structural damage in the spine using these scorings.

Methods: We conducted a cross-sectional study including patients with SpA diagnosed according to the AS Assessment International Society criteria. The modified Stoke Ankylosing Spondylitis Spine Score (mSASSS) and the Bath Ankylosing Spondylitis Radiology Index-spine (BASRI-s) were used to assess the radiographic involvement of the spine.

Results: A total of 112 patients were included: 72.32% men, mean age 43.78 ± 12.91 years. The mean age at diagnosis was 37.8 ± 13.45 years. The diagnostic delay was 9.33 ± 8.93 years. The mean symptom duration was 19.78 ± 18.24 years. The mean BASRI-t, BASRI-C, and BASRI-L were 3.99 ± 2.9, 0.89 ± 1.3, and 1.1 ± 1.3 respectively.

The mean mSASSS was 10.26 ± 5.15. The mean BASRI-t, BASRI-C, and BASRI-L were 3.99 ± 2.9, 0.89 ± 1.3, and 1.1 ± 1.3 respectively.

Radiographic sacroiliitis was noted in 75.8% of patients. It was bilateral in 91.7% of cases. Among the 161 sacroiliac joints fulfilling the m-New York criteria, 32.9% had grade 4 and 37.2% had grade 3.

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Conclusion: As reported in previous studies [1], we concluded that structural axial lesions were higher in patients with coxitis. Structural damage to the sacroiliac joint in SpA was predictive of hip involvement.

We suggest that sacroiliac, spinal and hip involvement are part of the same spectrum.

References:

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AB0725

AB0726

CHOROIDAL THICKNESS IS A BIOMARKER AND CAN PREDICT THE RESPONSE TO TREATMENT IN ANKYLOSING SPONDYLOITIS


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Background: Choroidal thickness (CT) has been proposed and evaluated as a potential marker of systemic inflammation associated with inflammatory diseases as Ankylosing spondylitis (AS). Patients with active AS have a thicker choroid than healthy subjects, regardless of eye inflammation. The evolution of choroid after treatment is poorly known.

Methods: This prospective multicenter study evaluates the CT in 44 patients with high AS disease activity, naïve for biological treatment, and no history of eye inflammation before and after six months of biological therapy, aged from 18 to 65 years. The correlations between the CT and C-reactive protein (CRP) with the disease activity indices and scales as Bath Ankylosing Spondylitis Disease Activity Index (BASDAI), night pain and Patient Global Assessment (PGA) were calculated at baseline and after six months of biological therapy.

The concordance between the CT and CRP was determined. We found a 95% concordance between CT and CRP at baseline and 6 months.

Results: Globally, 44 eyes of 44 patients aged between 18-65 years were included in the study. 12 (27%) women. The biological treatments prescribed were: Adalimumab 13 (29.5%), Certolizumab 9 (20.5%), Secukinumab 10 (20%), Etanercept 8 (18%), Infliximab 3 (6.8%), and Golimumab 1 (2.2%).

Mean CT values were significantly higher at baseline than after six months of treatment (baseline 355.28±80.46 µm; 6 months, 341.26±81.06 µm) (p<0.001). CT decreased both in patients on biological treatment without effect in eye (Secukinumab and Etanercept; p=0.024) and in patients on treatment with effect in eye (Adalimumab; p=0.005). All CRP BASDAI, night pain and PGA decreased after six months of treatment (p<0.001, p<0.001, p<0.001, p<0.001). We found a 95% concordance between CT and CRP at baseline and 6 months.

Multivariable analysis showed that clinically important improvement was defined as a decrease in ASDAS score ≥1.1 points.

Conclusion: The CT decreased significantly after six months of biological treatment. CT and CRP had a 95% concordance. A high CT is associated with risk of failure.