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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 GAG 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.

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.

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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- β 1) 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- β 1 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 $\pm$ σ) - 38.1 $\pm$ 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 $\pm$ 1.07, Bath Ankylosing Spondylitis Disease Activity Index (BASDAI, mm) - 45.3 $\pm$ 18.6, Bath Ankylosing Spondylitis Functional Index (BASFI, mm) - 31.7 $\pm$ 22.9.

Serum levels of TGF- β 1 (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 (SPARCC) 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 $\pm$ 31.5, ESR - 27.1 $\pm$ 22.1, Berlin score was 3.93 $\pm$ 3.87, SPARCC - 22.5 $\pm$ 11.9, Danish score - 20.5 $\pm$ 9.83.

Patients with SpA had significantly lower serum levels of biomarkers compared with the healthy controls: 285.3 $\pm$ 186.9 vs 443.2 $\pm$ 84.3, $p=0.0017$ - for TGF- β 1, and 21.7 $\pm$ 13.5 vs 31.2 $\pm$ 10.5, $p<0.0001$ - for Scl.

There were significant positive correlations for TGF- β 1: 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 had weak negative correlation with SPARCC ($r=-0.265$, $p=0.030$), but not with Danish or Berlin scores.

There were no other correlations, including ASDAS-CRP, BASDAI and BASFI for both TGF- β 1 and Scl.

Conclusion: Serum TGF- β 1 and Scl levels are significantly lower in SpA patients comparing with non-SpA subjects. TGF- β 1 positively correlates with disease activity (CRP and active MRI lesions in spine), but has no correlations with SIJ inflammation assessed by MRI. Scl negatively correlates with inflammatory MRI changes in SIJ, but not in the spine.

References:

[1] Vaez F. Rheum Res. 2017; 2(3): 103-107

[2] Perrotta FM. J Immunol Res. 2018. doi: 10.1155/2018/9101964

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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 spondyloarthritis (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.

Methods: Patients with SpA diagnosed according to the assessment of Spondyloarthritis International Society criteria were included in this retrospective cross-sectional study.

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.

The sacroiliac joints were scored according to the modified New York criteria. Radiological hip involvement was scored using the Bath Ankylosing Spondylitis Radiology Index hip (BASRI-h).

Patients were divided into two groups: G0 including patients without hip involvement and G1 patients with hip involvement.

Results: We included 112 patients with a sex ratio of 2.4. The average SpA symptom duration was 9.33 ± 8.93 years. The diagnostic delay was 42.92 ± 52 months.

Radiographic hip involvement was noted in 39.28% of cases. It was bilateral in 31 patients (70.4%). The total number of coxitis was 75. Severe and moderate hip involvement (BASRI-h ≥ 3) affected 21 hips. The most common radiographic pattern was early coxitis ($n=31$, 41.3%) followed by the destructive form ($n=22$, 29.3%), mimicking-osteoarthritis form ($n=15$, 20%), condensing form ($n=5$, 6.6%) and ankylosing form ($n=2$, 2%).

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.

The mean mSASSS was 10.26 ± 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 more common in patients with hip involvement (G1) (90.9% vs 68.2%, $p=0.00$). Patients in G1 had higher mSASSS (15.78 ± 18.24 vs 6.29 ± 11.85 , $p=0.01$), BASRI-L (1.73 ± 1.46 vs 0.75 ± 1.131 , $p=0.009$), and BASRI-s (5.46 ± 3.02 vs 3.19 ± 2.46 , $p < 10^{-3}$) than patients in G2. There was no significant difference between the two groups regarding the BASRI-C.

Multivariable analysis revealed that radiographic sacroiliitis was associated with hip involvement (OR=14.81, 95%, [1.1-198], $p=0.042$).

When comparing patients with severe and moderate hip involvement (BASRI-h ≥ 3) and those with mild involvement, we didn't find significant differences regarding BASRIs, BASR-L, BASRI-c, mSASSS, and sacroiliac involvement.

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 sacroiliitis, spinal and hip involvement are part of the same spectrum.

References:

- [1] Chen H-A, Chen C-H, Liao H-T, Lin Y-J, Chen P-C, Chen W-S, et al. Factors associated with radiographic spinal involvement and hip involvement in ankylosing spondylitis. *Semin Arthritis Rheum*. 2011;40 (6):552-8

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AB0725 FACTORS ASSOCIATED WITH RADIOGRAPHIC SPINAL 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 scores.

Methods: We conducted a cross-sectional study including patients with SpA diagnosed according to the assessment of Spondyloarthritis International Society criteria.

To assess the radiographic involvement of the spine, we used the mSASSS, the BASRI-spine (BASRI-S), the BASRI-lumber (BASRI-L) and the BASRI-cervical (BASRI-C).

Disease activity was assessed using the BASDAI and ASDAS-CRP.

Results: Among the 112 patients, 72.32% were men. The mean age was 43.78 ± 12.91 years. The mean age at diagnosis was 37.8 ± 13.45 years. The diagnostic delay of 37.8 ± 46 months.

Forty-nine patients were smokers (43.8%).

The mean BASDAI score and ASDAS-CRP score were 4.04 ± 1.99 and 3.30 ± 0.87 .

The mean ESR and CRP were 36.21 ± 27 (mm/H) and 31.28 ± 47.25 mg/L.

The mean BASRI-S was 3.99 ± 21.96 and the mean mSASSS was 10.26 ± 15.41 . Twenty-five patients (22.3%) had non-radiographic axial SpA.

Men had higher BASRI-L (1.36 vs 0.7 , $p=0.045$) and BASRI-S (4.3 vs 3.09 ; $p=0.047$) than women.

Moreover, smokers' patients had higher mSASSS (14.07 vs 7.02 ; $p=0.031$), BASRI-C (1.23 vs 0.62 ; $p=0.031$), and BASRI-S (4.82 vs 3.35 ; $p=0.009$) than non-smokers' patients.

A positive correlation was noted between age and BASRI-C ($r=0.260$, $p=0.012$). There was no correlation between age at the onset of SpA and structural spine damage.

We found a positive correlation between disease duration and the following scores: BASRI-C ($r=0.245$, $p=0.018$) and BASRI-S ($r=0.274$, $p=0.003$).

Patients with non-radiographic axial SpA had lower mSASSS (4.05 vs 12.14 ; $p=0.034$), BASRI-s (1.2 vs 4.9 ; $p < 10^{-3}$), and BASRI-L (0.42 vs 1.4 ; $p=0.003$) than patients with radiographic axial SpA.

There was no correlation between the radiographic index and BASDAI and ASDAS-CRP.

Conclusion: We confirmed previous observations that male gender, smoking and disease duration are associated with structural damage in the spine [1].

However, CRP and other inflammatory biomarkers were not associated with radiographic evidence of spine involvement.

As observed in previous studies, the radiographic spine damage did not correlate with disease activity (BASDAI) [1].

References:

- [1] Sari I, Haroon N. Radiographic Progression in Ankylosing Spondylitis: From Prognostication to Disease Modification. *Curr Rheumatol Rep*. 2018 Nov 8;20(12):82.

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AB0726 CHOROIDAL THICKNESS IS A BIOMARKER AND CAN PREDICT THE RESPONSE TO TREATMENT IN ANKYLOSING SPONDYLITIS

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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.

Objectives: This study evaluates the CT of patients with severe AS disease activity before and after six months of biological therapy.

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. Finally, we assessed potential predictors of response to treatment. Clinically important improvement was defined as a decrease in ASDAS score ≥ 1.1 points.

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 μ m; 6 months, 341.26 ± 81.06 μ m) ($p < 0.001$).

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 (other; $p=0.005$). Also, 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 associated with higher CT and age as independent factors (OR 0.97, CI95% 0.91-0.93; $p=0.009$, and OR 0.81, CI95% 0.70-0.95; $p=0.005$). Clinically important improvement was associated with basal CT > 374 μ m (sensitivity 78 %, [CI 95% 60-90], specificity 78% [CI 95% 52-92], area under the curve of ROC, 0.70, likelihood ratio 3.6).

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