notch, neck pain and headache. Pittsburgh sleep quality index (PSQI) was used for sleep disturbance. Pre and post contrasts enhanced MRI interventions were done for both groups during the period of follow up (three months).

Results: Notch, neck pain, headache and sleep disturbance have significantly decreased, during follow up visits (3 months), in AAJ group in comparison to the control group. The Pre-intervention notch pain score was 60.3 ±17.1 in AAJ group & 58.5 ±17.9 in control group. Pain has significantly decreased after 2weeks in AAJ group with continuous improvement till 3 months post-intervention 6.9 ±6.5 & 5.12 ±6.54 respectively. The Pre-intervention headache was 22.68 ±6.16 in AAJ group & 45.17 ±15.83 in control group decreased to 75.5 ±23.9 & 48.52 ±11.98 respectively post intervention. The percentage of patients who had sleep disturbance at baseline was 66.7% & 73.3% in AAJ and control groups respectively which has significantly decreased to 6.7% & 43.3% after 3 months. Regarding MRI, AAJ group had a statistical significant decrease in the percentage of patients with MRI synovial enhancement, inflammatory pannus, fibrosis and bone marrow edema in comparison to control group 3 months post intervention. All post-procedural side effects resolved within three months without further medical intervention, and no long-term sequela were identified.

Conclusion: Fluoroscopic guided intra-articular steroid injection of inflamed atlantoaxial joints is considered a beneficial therapeutic option in rheumatoid arthritis patients regarding clinical and radiological assessments.

References:

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SAT0548

DEVELOPMENT AND VALIDATION OF THREE PRELIMINARY MRI SACROILIAC JOINT COMPOSITE STRUCTURAL DAMAGE SCORES IN A 5-YEAR LONGITUDINAL STUDY OF PATIENTS WITH AXIAL SPONDYLOARTHRITIS


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Background: In axial spondyloarthritaxis(axSpA), MRI reliably detects structural lesions in the sacroiliac joints (SIJs). The SPARCC SIJ Structural Score (SSS) (1) is a reliable and validated method to assess the individual structural lesions of the SIJs, i.e. fat lesion, erosion, backfill (fat metaplasia in an erosion cavity) and ankylosis. Several MRI studies have indicated that bone destruction, i.e. erosion, is often followed by formation of new bone in the erosion cavity (backfill), ultimately leading to ankylosis(2).

Objectives: The aim was to combine SPARCC SSS for erosion, backfill and ankylosis into a composite score for SIJ structural damage and to test this score in a 5-year follow up study.

Methods: Thirty-three patients fulfilling ASAS criteria for axSpA were followed for 5 years after initiation of TNF inhibitor in the BISoPA study(3). T1-weighted and STIR MRI sequences of the SIJs acquired at week 0, 46 and year 2, 3, 4, 5 were evaluated with SPARCC SSS. In each of 5 slices of each SIJ, erosion is scored 0-1 per joint quadrant (score range 0-40), backfill 0-1 per joint half (score range 0-20) and ankylosis 0-1 per joint half (score range 0-20). Based on the scores for erosion, backfill and ankylosis 3 versions of a preliminary Composite axSpA MRI SIJ Structural Damage Score (CSDS) were calculated:

CSDS-A: (erosion score x0.5) + backfill score + ankylosis score
CSDS–B: (erosion score x1) + (backfill score x4) + (ankylosis score x6)
CSDS–C: (erosion score x1) + (backfill score x4) + (ankylosis score x6)

The “<” indicates a hierarchical order, meaning that erosion was not scored if backfill was present in the same joint half and erosion and backfill were not scored if ankylosis was present in the joint half.

Results: Patients were divided into two groups: patients with almost complete bilateral ankylosis (baseline SPARCC SSS Ankylosis ≥18, n=10) and patients with no/minor ankylosis (baseline SPARCC SSS Ankylosis ≤7, n=23). At baseline patients with no/minor ankylosis were younger, had shorter symptom duration, lower BASMI, higher SPARCC SIJ Inflammation, lower SSS Fat, Erosion, Backfill and Ankylosis, as compared with patients with almost complete ankylosis.

At baseline, CSDS-A, -B and -C correlated positively with SPARCC SSS Fat and Ankylosis and modified New York criteria grading, and negatively with BASDAI and SPARCC inflammation. Change in CSDS-B and -C over 5 years correlated lower BASMI, higher SPARCC SIJ Inflammation, lower SSS Fat, Erosion, Backfill and Ankylosis, as compared with patients with almost complete ankylosis.

The annual progression for CSDS-B and -C was statistically significantly larger in year 1 compared with year 4 (p=0.01) and numerically larger compared with year 2 (p=0.075), 3 (p=0.382) and 5 (p=0.073). Figure 1 shows the annual change in patients with no/minor ankylosis.

Conclusion: Three preliminary Composite Structural Damage Scores for MRI assessment of the SIJs in patients with axSpA, which allows scoring of MRI progression of erosion through backfill to ankylosis, were introduced. Progression was most pronounced the first year after TNF inhibitor initiation. This novel approach may be useful for monitoring structural progression in axSpA. We suggest that these methods are further tested for responsiveness and ability to differentiate between different therapies in randomized controlled trials.

References:

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SAT0549

A SEMI-QUANTITATIVE MRI SCORING SYSTEM FOR INFLAMMATION IN JOINTS AND ENTHESES IN THE LOWER EXTREMITIES DEMONSTRATES GOOD RELIABILITY AND VALIDITY: POST-HOC ANALYSIS OF DATA FROM THE CRESPA TRIAL

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The annual progression for CSDDS-B and -C was statistically significantly larger in year 1 compared with year 4 (p=0.01) and numerically larger compared with year 2 (p=0.075), 3 (p=0.382) and 5 (p=0.073). Figure 1 shows the annual change in patients with no/minor ankylosis.
Background: MRI allows an objective assessment of signs of inflammation in peripheral joints and entheses and is therefore of potential interest as outcome measure in trials. No knowledge exists on the reliability and validity of semi-quantitative MRI scores in the setting of peripheral spondyloarthritis (pSpA).

Objectives: To describe the reliability of a semi-quantitative lower-extremity MRI scoring system, to investigate correlation with known measures of disease activity and ability to capture patients with improvement during treatment.

Methods: In a post-hoc analysis, scores from 3 readers (LJ, MØ, SK) who independently assessed MRI images of pelvis (except sacroiliac joints), knees and ankles in the CRESPA trial blinded to chronology and all clinical data, were further analyzed. Entheses were scored 0-3 (none/mild/moderate/severe) for soft tissue inflammation (19 sites) and 0-3 for bone marrow edema (24 sites), joints were scored 0-3 for effusion/synovitis (10 sites) and 0-3 for bone marrow edema (22 sites). MRI score was defined as the sum of scores from all joints and entheses (i.e. all 75 sites). The CRESPA trial (NCT01426815) included 60 patients with early pSpA, defined as a symptom duration of <12 weeks. All patients underwent, additional MR imaging (MRI) of the same anatomic areas. Written informed consent was obtained from all patients. Patients were impressed to perform the MRI at baseline and at 26 weeks. Three readers assessed MRI images of pelvis (except sacroiliac joints), knees and ankles in consensus, according to the PASRI criteria.

Results: MRI scores were combined to determine change scores (n=46) had single measure ICC 0.73 (0.57–0.84) average measure (relevant when using averaged scores from 3 readers). MRI change scores were mean −3.1 and (median −1, IQR −4 to 9, range 0 to 32). MRI change scores correlated significantly with CRP, ESR, swollen joint count and the CTSS score. CT image quality and effective dose for CT and radiographs for the axial skeleton.

Conclusions: The semi-quantitative lower-extremity MRI score showed acceptable reliability and validity. The ability to capture response was best when combining information from all available areas that were imaged, i.e. both pelvis, knees and ankles.

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