POS0031

THE PREVALENCE OF INFLAMMATORY BACK PAIN AND HLA-B27 IN A LARGE POPULATION-BASED COHORT IN THE NETHERLANDS

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Background: Although chronic low back pain (≥ 3 months) before the age of 45 and inflammatory back pain (IBP) are regarded as early presenting and key features of axial spondyloarthritis (axSpA), and Magnetic Resonance Imaging (MRI) can be used to demonstrate sacroiliitis, the substantial delay in the diagnosis of axSpA has not improved.⁽¹⁾ Additionally, knowledge on the prevalence of chronic low back pain before the age of 45 and IBP in combination with the axSpA-related genetic risk factor Human Leukocyte Antigen-B27 (HLA-B27) in the general population is scarce.

Objectives: To estimate the prevalence of chronic low back pain before the age of 45 and IBP in combination with the presence of HLA-B27 in a large Dutch population based cohort.

Methods: Participants of the Lifelines cohort, a large population-based cohort of the northern region of the Netherlands, filled out a questionnaire on chronic low back pain and IBP. Chronic low back pain was defined as an affirmative answer to the question 'Did you suffer from low back pain for ≥ 3 months?'. IBP was questioned based on the validated European Spondyloarthropathy Study Group (ESSG) IBP criteria and was confirmed if at least 4 out of the following 5 criteria were present: (a) onset before age 45, (b) insidious onset, (c) improvement with exercise, (d) associated with morning stiffness, (e) at least 3 months duration. Participants reporting to have been diagnosed with axSpA were identified using variations of the search terms "Bechterew", "spondyloarthritis" and "ankylosing spondylitis". The Illumina global screening array (GSA) beadchip-24 v1.0 was used to genotype genome-wide SNPs in a subset of Lifelines participants. HLA-B haplotypes were imputed using neighboring SNPs with HIBAG, which is an R-package, using published parameter estimates.⁽²⁾ The predicted HLA-B haplotype was considered valid if the posterior probability was $>80\%$.

Results: In total 94,277 Lifelines participants answered the chronic low back pain question, of which 93,665 (99.4%) completed the ESSG IBP questions. Of these participants, 56,008 (59.8%) were female, mean age was 45.6 ± 12.8 years and 22,192 (23.7%) reported to have been suffering from chronic low back pain. In this chronic low back pain group, the pain began before the age of 45 in 17,122 (77.2%; 18.3% of entire Lifelines population) participants, and 13,514 (60.9%; 14.4% of entire Lifelines population) participants reported to have IBP according to the ESSG criteria.

Of 32,785 participants genetic data were available and in 29,399 (89.7%) the HLA-B haplotype could be determined with high prediction accuracy, of which 2,279 (7.8%) participants were HLA-B27 positive. Of these HLA-B27 positive participants, 1,610 (70.6%) also had available chronic low back pain data, of which 373 (23.2%) reported chronic low back pain. Of these 373 patients with chronic back pain and HLA-B27 positivity, the pain began before the age of 45 in 296 (79.4%), and 237 (64.2%) fulfilled the ESSG IBP criteria of which only 11 (4.6%) participants reported to be diagnosed with axSpA.

Conclusion: In this large population-based cohort, 18.3% of participants reported chronic low back pain that began before the age of 45. 14.4% of the participants reported IBP, which is relatively high in comparison to previous studies. HLA-B27 prevalence (7.8%) was similar to previously published data from the North-Western European population. The vast majority of participants with both IBP and the presence of HLA-B27 did not report an axSpA diagnosis. A next step in the analyses will be to explore associations with other demographic and clinical factors present including additional SpA features.

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Imaging in axial spondyloarthritis

POS0032

SCORING MRI STRUCTURAL LESIONS IN SACROILIAC JOINTS OF PATIENTS WITH AXIAL SPONDYLOARTHRITIS: HOW MANY SLICES ARE OPTIMAL?

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Background: There is no international consensus on the optimal number of slices for evaluation of MRI structural lesions in the SIJ. An "all slice" method evaluates lesions from the most anterior slice, defined as the first slice with vertical height of ≥ 1 cm of the SIJ joint cavity, up to the most posterior slice, defined as the most posterior slice where ≥ 1 cm vertical height of the cartilaginous portion is still visible. The SPARCC method scores the transitional slice between cartilaginous and ligamentous compartments as the first slice and then an additional 4 slices anterior to the transitional slice.

Objectives: We aimed to investigate inter-reader reliability, the extent of detection of lesions, and frequency of cases with a positive MRI for structural lesions when using an "all slice" approach versus the SPARCC scoring of 5 central slices.

Methods: MRI T1W images with DICOM series were available from 148 cases who had MRI performed in the ASAS-Classification Cohort. Seven central readers recorded MRI lesions in an eCRF that recorded global assessments of presence/absence of changes suggestive of axSpA and structural lesions typical of axSpA. Structural lesions per the ASAS definitions were also recorded in consecutive semicoronal slices using the "all slice" approach, but also recording the transitional slice, according to their presence/absence in SIJ quadrants (erosion, fat lesion, sclerosis) or halves (backfill, ankylosis). Structural lesion frequencies were assessed descriptively according to majority agreement ($\geq 4/7$) of central readers and also any 2 central readers. Reliability for detection of MRI lesions was compared between central and local readers using the ICC.

Results: The mean (SD) (range) number of anterior and posterior slices peripheral to the 5 central slices was 1.0 (1.0) (0-4) and 2.2 (1.8) (0-6) per case, respectively. There were 2 cases (1.4%) where ≥ 2 readers scored structural lesions in peripheral slices but not in the 5 central slices. The mean percentage of the total structural lesion score that was captured by the 5 central slices was $>75\%$ for all types of lesions except ankylosis (59%) (Table 1). Inter-reader reliability was greater for all lesions when assessing the 5 central slices and especially for erosion and backfill (Table 1).

Conclusion: The major component of structural lesion data is captured by assessment of 5 slices, which includes the transitional slice and the subsequent 4 anterior slices. Moreover, reliability for detection of structural lesions is substantially worse in peripheral slices.

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