Correspondence on 'Which factors are associated with bone marrow oedema suspicious of axial spondyloarthritis as detected by MRI in the sacroiliac joints and the spine in the general population?'

We have read with great interest the work by Xenofon Baraliakos.[1] The authors evaluated the presence of bone marrow oedema (BME) in spinal and sacroiliac joint (SIJ) MRIs of 793 patients, and analysed its clinical predictors. This study identified that HLA-B27 +, delivery during the last year in female adult, high body mass index (BMI) and presence of back pain in the last 3 months were strongly associated with the extent of SIJ BME, while age and physically demanding work were the predictors for spinal BME. We agree with the hypothesis that mechanic strain such as delivery, high BMI and physically demanding work contribute to BME since multiple other researches also report the same results,[2 3] and interestingly, unlike previous studies,[4] high-sensitivity C reactive protein (hsCRP) is found not associated with SIJ-BME in this study. However, we believe that at least three points should be discussed to integrate these new results and help guiding further development of predictive models.

First, we suggest short tau inversion recovery (STIR) sequence in the evaluation of spinal BME. For detecting active inflammatory spinal lesions, STIR, T2-weighted fat-suppressed fast spin-echo (T2W/FS) and T1-weighted fat-suppressed contrast-enhanced sequences are all suggested.[5 6] Concerning the safety of contrast medium in patients with renal insufficiency, contrast-enhanced sequence is recommended in cases of doubt and high suspicion. Both T2W/FS and STIR images identify spinal BME as high signal intensity lesion; however, there are subtle differences between the two sequences. STIR sequence is less sensitive to magnetic field heterogeneity, even though it is tend to have lower signal-to-noise ratio than T2W/FS sequence. Therefore, STIR sequence is the primary choice for visualising spinal BME.

Second, in this study, Berlin score is used to document the extent of BME. Another type of scoring system for SIJ BME, SPARCC, is also well recognised. According to a study in 2005 organised by ASAS/OMERACT (Outcome Measures in Rheumatology Clinical Trials) working group, no significant difference was found between the two scoring systems.[7] However, in two other studies,[2 3] the extent of SIJ and spinal BME is quantified using SPARCC scoring system. As a result, 'deep lesions' were highly specific for axial spondyloarthritis (axSpA) associated sacroiliitis,[2 8] and can help distinguish BME in postpartum women from axSpA, since it is seen frequently in axSpA and rarely in postpartum women. Another review also states that BME is typically symmetric and located in posterior-lower part of the SIJ in patients with SpA.[5] Hence, to better understand clinical significance of deep lesions, we suggest the use of SPARCC scoring system in addition to Berlin score; and to distinguish the characteristic of BME in axSpA from BME in standard population, we suggest thorough documentation of the anatomical location and symmetry of BME.

Third, regarding author's conclusion on HLA-B27 being a severity factor rather than a susceptibility factor for SIJ BME, we reserve our judgement. In this study, only slight association is found between HLA-B27 and the presence of SIJ BME; however, other studies revealed that HLA-B27 is significantly associated with both the presence[9] and the extent of SIJ BME[10] in patients with inflammatory back pain. According to our previous review,[11] the assessment of HLA-B27 should be prioritised before calculating SpA features such as SIJ BME, and HLA-B27 is considered a susceptibility factor for radiographic progression in ankylosing spondylitis (AS),[12] But the clear relationship between HLA-B27 and SIJ BME requires further study and analysis.

Finally, although it may not be the primary purpose of the study to diagnose axSpA, diagnosed or undiagnosed patients with AS still cannot be excluded in this study. Regarding the use of claims data andInternational Classification of Diseases,Tenth Revision (ICD 10) code M45.09, we suggest the author demonstrate the accuracy, or at least positive predictive value, of this diagnostic algorithm for validation of this study, since affirmation diagnosis of axSpA requires the use of ASAS criteria or the review of a professional rheumatologist.

In conclusion, we agree with most of the findings pointed out by this study. It backs up the proposed correlation between mechanic strain and BME found in MRI, and unveiled the factors associated with SIJ and spinal BME that mimics axSpA. Yet, the well-defined role of HLA-B27 is not understood and demands further study. Hence, we suggest a more comprehensive analysis of BME for a better understanding of factors crucial for distinguishing axSpA from other false-positive BMEs.

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