

Joint damage in healthy military recruits may mimic spondyloarthropathies

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The magnetic resonance imaging (MRI) scans of healthy military recruits showed sacroiliac joint damage similar to that found in axial spondyloarthritis after just six weeks of intensive physical training, reinforcing the importance of exercising caution when interpreting MRI results, according to new research findings presented this week at the 2017 ACR/ARHP Annual Meeting in San Diego.

Axial spondyloarthropathy (axSpa) is an inflammatory disease with low back pain as its main symptom. Spondyloarthritis (SpA) can also affect the arm and leg joints, and organs like the skin, eyes or intestines. Inflammation often affects the entheses, or the sites where ligaments and tendons attach to bones. People in their teens and 20s, especially young men, are most commonly affected.

Physicians often use MRI as a sensitive method to detect bone marrow edema (BME) and structural lesions in patients with axSpA. Mechanical stress is considered an important factor in the disease's development. However, it is unclear how often these MRI findings would be seen as a result of mechanical stress/intensive physical activity in a non-SpA population to clarify the specificity of these findings for diagnosis.

To learn more about the effects of intensive activity on these joints, researchers in Ghent, Belgium, examined MRI data from a volunteer group of young military recruits who did not have spondyloarthritis.

"The availability of MRI has shortened diagnostic delay in SpA. In the

past, diagnosis could only be made when structural damage on an X-ray was visible, and there were no means to detect active inflammation. MRI is a sensitive method for the detection of active sacroiliitis, but there is limited data regarding its specificity. It is important to evaluate this, considering the risk of over diagnosing SpA," said Thomas Renson, MD, a researcher at Ghent University in Belgium and a lead author of the study. "One of the strengths of our trial is the homogeneity of our study population. All the recruits had a similar physical condition and were well-trained. All the participants followed the same daily training program and were living in the same housing and environmental conditions. Therefore, the possible extrinsic factors that could influence the MRI appearance were the same for every recruit."

In the study, 22 military recruits were given MRI scans of their sacroiliac joints (MRI-SIJ) before and after six weeks of intense, uniform physical training. Bone marrow edema (BME) and structural lesions on the scans were scored by three trained readers and blinded for time sequence and clinical findings. The Spondyloarthritis Research Consortium of Canada (SPARCC) score was used to assess bone marrow edema. An adjusted method derived from the SPARCC was used to assess the structural lesions, including sclerosis, erosions, fatty lesions and ankylosis. The recruits' results were also evaluated for agreement with the definition of a positive MRI per the Assessment of Spondyloarthritis (ASAS).

At baseline, 40.9 percent of the recruits already presented with at least one BME lesion. At week six, this number increased to 50 percent. In the recruits who had BME, the mean number of lesions at baseline was 2.4, and rose to 3.7 at week six. In addition, 22.7 percent of recruits had a positive MRI according to the ASAS definition, and this increased to 36.4 percent at the follow-up. Structural lesions in 36.4 percent of recruits were observed at baseline, and 50 percent of the recruits had structural lesions after six weeks of training.

The researchers concluded the high prevalence of lesions at baseline and high proportion of participants meeting the ASAS definition of a positive MRI for sacroiliitis were both striking, significant results.

"There is evidence that biomechanical stress plays an important role in the pathophysiology of SpA. Considering that none of the recruits in this trial have SpA, this trial does not intend to support or counter this claim. It does show the importance of the necessary caution when interpreting MR images of the sacroiliac joint. Since non-SpA patients can have SpA-like MRI [lesions](#), setting the appropriate clinical indication for imaging is very important," Dr. Renson said.

"MRI can strengthen or weaken your suspicion of SpA, but does not give you 100 percent certainty. The fact that there was a relatively high proportion of participants meeting the ASAS definition of a positive MRI for sacroiliitis underscores again the important difference between diagnostic criteria and classification criteria. The ASAS definition should only be used in a SpA-population. Caution should be warranted when a chronic, aspecific back pain patient walks into the consultation room with limited bone marrow edema on MRI of the SIJ. A wrong diagnosis of SpA is easily made."

Provided by American College of Rheumatology

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