

## Severe Bone Marrow Edema on Sacroiliac Joint MRI Increases the Risk of Low BMD in Patients with Axial Spondyloarthritis

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**Abstract :** Objective: To determine the association between inflammatory and structural lesions on sacroiliac joint (SIJ) MRI and BMD and to identify risk factors for low BMD in patients with axial spondyloarthritis (axSpA). Methods: Seventy-six patients who fulfilled the ASAS axSpA criteria were enrolled. All underwent SIJ MRI and BMD measurement at the lumbar spine, femoral neck, and total hip. Inflammatory and structural lesions on SIJ MRI were scored. Laboratory tests and assessment of radiographic and disease activity were performed at the time of MRI. The association between SIJ MRI findings and BMD was evaluated. Results: Among the 76 patients, 14 (18%) had low BMD. Patients with low BMD showed significantly higher bone marrow edema (BME) and deep BME scores on MRI than those with normal BMD ( $p < 0.047$  and  $0.007$ , respectively). Inflammatory lesions on SIJ MRI correlated with BMD at the femoral neck and total hip. Multivariate analysis identified the presence of deep BME on SIJ MRI, increased CRP, and sacroiliitis on X-ray as risk factors for low BMD (OR: 5.6, 14.6, and 2.5, respectively). Conclusion: The presence of deep BME on SIJ MRI, increased CRP levels, and severity of sacroiliitis on X-ray were independent risk factors for low BMD.

**Keywords :** axial spondyloarthritis, sacroiliac joint MRI, bone mineral density, sacroiliitis

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