Inflammation on spinal magnetic resonance imaging is associated with poor bone quality in patients with ankylosing spondylitis

Key Take-Away:

Ankylosing spondylitis is counted as the most prevalent arthritis form that affects peripheral joints and spine. Many of the AS patients exhibited inflammatory changes in various axial skeleton structures during MRI. This study concentrates on finding whether the trabecular bone score (TBS), a measure of bone texture shows any connection with inflammatory lesions on spinal magnetic resonance imaging (MRI) to evaluate bone quality among AS patients.

Introduction

The study was aimed to evaluate the relationship between trabecular bone score (TBS) and inflammatory lesions on spinal magnetic resonance imaging (MRI) among ankylosing spondylitis (AS) patients.

Methods

A total of ninety-seven patients went through spine MRI and dual energy X-ray absorptiometry of the lumbar spine to determine bone mineral density (BMD) and TBS. The bone marrow edema (BME) on MRI was regarded as an inflammatory lesion. The intensity, presence, and depth (>1 cm) of MRI and BME were calculated for the 1st-4th lumbar spine segments. Spinal structural damage scores and inflammatory markers during MRI examination were noticed. The TBS and MRI correlation on the basis of inflammatory activity score was also evaluated.

Results

Fifty-two out of 97 patients found to have BME on Spinal MRI (L1–L4). The patients with and without BME exhibited 1.38 ± 0.11 and 1.43 ± 0.11 TBS values, respectively (p = .022). Further, TBS was negatively associated with the total inflammatory activity scores spinal MRI. Patients with a TBS value describing a high fracture risk showed increased deep BME (>1 cm) (p = .048) on MRI. The TBS reduced as inflammation severity on MRI elevated, after adjusting lumbar spinal structural damage, symptom duration, and age (p = .026).

Conclusion

The inflammation on spinal MRI was negatively associated with TBS among the AS patients. The spine's severity of local bone inflammation was correlated with critical poor bone quality. These verdicts propose that the management of active bone inflammation may be useful to impede osteoporosis in AS patients.

Source: Modern Rheumatology

Link to the source: https://www.tandfonline.com/doi/abs/10.1080/14397595.2018.1510877
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<td><strong>Authors:</strong></td>
<td>Joon-Yong Jung et al.</td>
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Exploratory, Ankylosing Spondylitis, Joints, Spine, BMD, MRI, BME