MRI findings of the Sacroiliac Joint in a cohort of Axial Spondyloarthritis, Chronic Low Back Pain Patients and Healthy Controls

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Disclosures

- An unrestricted grant was provided by ABBOTT
- AW has received consulting fees of less than €1000 from Abbvie, Pfizer, Roche and MSD
- All other authors have declared no conflicts of interest

Background

- MRI of the sacroiliac joints (SI-joint) has become an important tool in daily practice
- The definition of sacroiliitis on MRI → bone marrow edema (BME)¹
- Maybe BME on the MRI → SI is not specific for axial spondyloarthritis (axSpA)²-³

Purpose

- To describe MRI-SI findings in a large cohort of
  o Axial spondyloarthritis patients
  o Chronic low back pain patients (CLBP)
  o Healthy controls
- To assess the diagnostic value for a ‘positive’ MRI-SI, in axSpA patients
  o Added value structural lesions

Methods

- CaFaSpA 2 study
  o Cross-sectional study
    o Primary care patients (18-45 years)
    o Chronic low back pain (CLBP) ≥ 3 months
    o 579 patients
    o Primary endpoint axSpA
    o Radiographic & non-radiographic SpA
- 79 healthy controls
  o No low back pain

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References

² Weber et al. Arthritis care & research 2010 62:12 (1763-1771)
Methods

• MRI of the SI-joints in all participants
  o T1
  o STIR

• MRI-SI read and scored independently by one out of two experienced radiologist, blinded for clinical status

Methods

• Bone marrow edema¹
  o Located at typical anatomical areas (subchondral or periarticular bone marrow)
  o BME lesion present on at least two consecutive slices, or more than one BME lesion on a single slice

• Structural lesions
  o Present or not present
  o Fat depositions, sclerosis, erosions and ankylosis

• Diagnostic value expressed in sensitivity and specificity


Cohort characteristics

<table>
<thead>
<tr>
<th></th>
<th>axSpA patients (n=95)</th>
<th>CLBP patients (n=484)</th>
<th>Healthy controls (n=79)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Radiographic SpA (n=24)</td>
<td>Non-radiographic SpA (n=71)</td>
<td></td>
</tr>
<tr>
<td>Male n (%)</td>
<td>6 (25%)</td>
<td>30 (42%)</td>
<td>202 (42%)</td>
</tr>
<tr>
<td>Age yrs mean (sd)</td>
<td>38.6 (5.8)</td>
<td>36.8 (6.6)</td>
<td>35.8 (7.1)</td>
</tr>
<tr>
<td>CLBP duration yrs mean (sd)</td>
<td>9.3 (9.9)</td>
<td>9.7 (7.4)</td>
<td>9.2 (7.7)</td>
</tr>
<tr>
<td>HLA-B27 pos n (%)</td>
<td>2 (8%)</td>
<td>19 (27%)</td>
<td>15 (3%)</td>
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MRI-SI findings

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<td>BME n (%)</td>
<td>8 (33%)</td>
<td>59 (83%)</td>
<td>24 (5%)</td>
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<tr>
<td>Structural lesions (SL) n (%)</td>
<td>16 (67%)</td>
<td>8 (11%)</td>
<td>36 (7%)</td>
</tr>
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<td>19 (79%)</td>
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MRI-SI findings

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Sensitivity & Specificity

- Positive MRI-SI based on BME
  - Sensitivity 71%
  - Specificity 94%

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<th>axSpa -</th>
<th>Total</th>
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<tbody>
<tr>
<td>BME +</td>
<td>67</td>
<td>35</td>
<td>102</td>
</tr>
<tr>
<td>BME -</td>
<td>28</td>
<td>528</td>
<td>556</td>
</tr>
<tr>
<td>Total</td>
<td>95</td>
<td>563</td>
<td>658</td>
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- Positive MRI-SI based on BME or SL
  - Sensitivity 84%
  - Specificity 87%

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<td>BME + or SL +</td>
<td>80</td>
<td>72</td>
<td>152</td>
</tr>
<tr>
<td>BME - and SL -</td>
<td>15</td>
<td>491</td>
<td>506</td>
</tr>
<tr>
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<td>95</td>
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Conclusion

- Bone marrow edema and structural lesions on MRI-SI not exclusively for axSpA

- Adding structural lesions to a ‘positive’ MRI-SI can be helpful for the rheumatologist in diagnosing axSpA

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- All healthy controls
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