in prediction accuracy between constructs was further assessed as integrated discrimination improvement (IDI). Similar AUC and IDI constructs evaluated the transition to obstructive or extensive atherosclerosis at follow-up in patients with baseline non-extensive or non-obstructive disease.

**Results:** High hs-cTnI (>15pg/ml) added to FR3-DA increased AUC from 0.717 to 0.731 (Figure 1A) and improved prediction baseline plaque [IDI=0.041 (SE)=0.017, p=0.015]. In contrast, a-b2GPI-IgA did not [IDI=0.005 (0.006), p=0.47] and the combination offered no added benefit to the hs-cTnI model alone. Similar observations were made for CAC. Presence of a-b2GPI-IgA independently associated with coronary plaque progression (IRR=1.67 [95%CI 1.04-2.67]), whereas hs-cTnI did not. Likewise, a-b2GPI-IgA associated with transition to obstructive or extensive disease independently of FR3-DA (OR=13.48 [95%CI 2.09-86.99]). Notably, 71.4% of a-b2GPI-IgA positive patients with high hs-cTnI progressed to extensive or obstructive disease compared to 77% of a-b2GPI-IgA negative subjects with high hs-cTnI (p=0.008). Addition of a-b2GPI-IgA to FR3-DA in patients with prevalent non-extensive non-obstructive plaque increased AUC from 0.785 to 0.900 (Figure 1B) and significantly improved the prediction for development of obstructive or extensive atherosclerosis at follow-up [0.387 (0.13), p=0.003].

**Conclusion:** High hs-cTnI improved the risk of baseline plaque presence beyond clinical risk score and may trigger an initial non-invasive coronary atherosclerosis evaluation. A-b2GPI-IgA presence may justify a follow-up evaluation in patients with non-extensive, non-obstructive plaque at baseline to obstructive or extensive atherosclerosis at follow-up.

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**Table 1. Clinical and PET parameters of the patients**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Initial data (n=27)</th>
<th>Follow-up data (n=27)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean (SD)/Median (IQR)</td>
<td>Mean (SD)/Median (IQR)</td>
</tr>
<tr>
<td>TJC(28)</td>
<td>10 (5-13)</td>
<td>3 (2-4)</td>
</tr>
<tr>
<td>SJC(28)</td>
<td>6 (3-7)</td>
<td>1 (0-2)</td>
</tr>
<tr>
<td>ESR</td>
<td>25 (20-41)</td>
<td>24 (18-35)</td>
</tr>
<tr>
<td>CRP</td>
<td>6.0 (5.0-6.0)</td>
<td>3.0 (2.0-4.0)</td>
</tr>
<tr>
<td>DAS28(3)</td>
<td>5.14 (0.85)</td>
<td>3.74 (0.88)</td>
</tr>
<tr>
<td>DAS28(4)</td>
<td>5.60 (0.90)</td>
<td>3.80 (0.96)</td>
</tr>
<tr>
<td>PET positive Joints</td>
<td>12 (7-8)</td>
<td>4 (2-9)</td>
</tr>
<tr>
<td>sSUVmax</td>
<td>2.06 (1.68-2.52)</td>
<td>1.79 (1.00-2.06)</td>
</tr>
<tr>
<td>hSUVmax</td>
<td>3.45 (2.71-4.70)</td>
<td>3.34 (1.95-4.25)</td>
</tr>
</tbody>
</table>

**Comparison with DAS28**

A PROSPECTIVE STUDY EVALUATING THE ROLE OF 68GA-RGD2 PET/CT ANGIOGENESIS IMAGING IN ASSESSING DISEASE ACTIVITY AND TREATMENT RESPONSE IN RHEUMATOID ARTHRITIS AND ITS COMPARISON WITH DAS28

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**Background:** PET/CT imaging of synovial angiogenesis using 68Ga-RGD (cyclic tripeptide agent targeting α5β3 integrin) to study disease activity in rheumatoid arthritis (RA) has been demonstrated earlier in a few patients. However, post treatment changes in disease activity on 68Ga-RGD2 PET/CT imaging have not been adequately assessed.

**Objectives:** To compare the performance of 68Ga-RGD2 PET/CT with disease activity score (DAS) 28 in assessing disease activity and treatment response in RA.

**Methods:** Thirty patients (24F, 6M) aged 43±12 years with clinically diagnosed RA were prospectively studied. After calculation of DAS28 by a rheumatologist, all 30 patients underwent 68Ga-RGD2 PET/CT scan. Of these, 27 patients underwent a second 68Ga-RGD2 PET/CT scan and clinical assessment after at least 3 months of treatment. Total body and regional images of the upper limbs were acquired and interpreted by two nuclear medicine physicians blinded to the clinical findings. Joints showing focally increased tracer uptake compared to the background were considered positive and joints showing uptake equal to or less than background were considered negative.

**Results:** Of 1560 joints examined in the initial scan, 394 were positive on PET/CT compared to 348 on clinical evaluation. Inter-observer agreement between nuclear medicine physicians was excellent (Cohen's kappa 0.92, p<0.05) and inter-modality agreement between PET and clinical examination was moderate (Cohen's kappa 0.55, p<0.05). The DAS28 and SUVmax values (highest and average) of 27 patients showed significant reduction on follow-up compared to the initial evaluation. There was significant correlation between percentage change in DAS28 and percentage change in scan parameters like PET positive joint counts (0.689, p<0.001), average SUVmax (0.712, p<0.001) and highest SUVmax values (0.558, p=0.003) of scan-positive joints in 27 patients. Additional advantages of 68Ga-RGD2 PET/CT included objective assessment, whole body evaluation of all small and large joints, and greater reproducibility.

**Conclusion:** 68Ga-RGD2 PET/CT is a promising tool for objective assessment of disease activity and treatment response in patients with RA.

THU0532

SEMIQUANTITATIVE ANALYSIS OF BONE SCINTIGRAPHY TO PREDICT SPINAL PROGRESSION IN EARLY AXIAL SPONDYLOARTHRITIS: A PILOT STUDY

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**Background:** Axial spondyloarthritis (axSpA) is a chronic inflammatory disease that typically affects the axial joint and enthesis. Abnormal hyperplasia of osteoblasts in the vertebral corner is the underlying pathogenesis of syndesmophyte

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**Disclosure of Interests:** None declared

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RAMRIS scoring and measurement of the cartilage thickness were repeated by R1 to assess intra-observer agreement. Statistical analysis was based on intra-class correlation coefficients (ICC) with 95% confidence interval to assess inter-technique, intra-observer and inter-observer agreement. The strength of agreement was interpreted as follows: ≤0, poor; 0.01-0.20, slight; 0.21-0.40, fair; 0.41-0.60, moderate; 0.61-0.80, substantial and ≥0.81, excellent.

Results: Agreement between total RAMRIS scores obtained with the Dixon water- and fat-only images and total RAMRIS scores obtained with the OMERACT sequences was excellent for R1 (0.94; 0.86-0.97) and R2 (0.91; 0.81-0.96). Intra-observer agreement was excellent with Dixon images (0.97; 0.92-0.98) and OMERACT sequences (0.96; 0.90-0.98). Inter-observer agreement was excellent with Dixon images (0.92; 0.82-0.96) and OMERACT sequences (0.93; 0.85-0.97).

Agreement between the measures of cartilage thickness on the Dixon out-of-phase images and the measures of cartilage thickness on radiographs was substantial (0.71; 0.66-0.75). Intra-observer agreement was excellent with Dixon out-of-phase images (0.94; 0.93-0.95) and radiographs (0.93; 0.92-0.94).

Conclusion: An MRI protocol based on a single contrast-enhanced T1-weighted Dixon sequence allows reproducible RAMRIS scoring and measurement of the cartilage thickness. Further studies should be performed to evaluate the value of a short MRI protocol based on the Dixon method to monitor disease activity including cartilage loss in treated RA patients.

References:

Disclosure of Interests: None declared.

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