Investigation Of Selected Biochemical Markers In Knee Osteoarthritis: The Framingham Osteoarthritis Cohort
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improvements over placebo were seen in 0.03 mg and 0.07 mg treatment arms, achieving statistical significance for PTGA and MDGA. Further studies to identify relevant sub-populations and evaluate the safety and efficacy of SM04690 are ongoing.

**Disclosure of Interest**: Y. Yazici Shareholder of: Samumed, LLC; Employee of: Samumed, LLC; Grant/Research Support of: AbbVie, Pfizer, J&J; KOFUS. An increase in all these variables is associated with an increase in Y. Luo

Y. Hussein Gazar

**Disclosure of Interest**: None declared

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**SAT0553**

**DETECTION OF SERUM LEVEL CHANGES OF MATRIX METALLOPROTEINASE-13 AND INTER LEUKIN-1BETA DURING REMISSION AND FLARE-UPS OF PRIMARY OSTEOARTHRITIS OF THE KNEES**

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**Background**: The diagnosis of osteoarthritis is currently based on radiographic criteria (eg, joint space width) and clinical symptoms (eg, pain and loss of function).

The evaluation of new disease-modifying osteoarthritis drugs (DMOADs) is performed on the same basis, since the regulatory bodies currently require evidence for an impact on radiographic joint space narrowing (JSN) and an impact on symptoms However, the limitations of radiography have led to research into alternative parameters for monitoring osteoarthritis that could serve as biomarkers in drug development.

**Objectives**: Detection the serum level of MMP-13 and IL-1β in OA of the knee during remission and exacerbation and if these Biomarkers can be validated as gold biomarkers in assessing OA progression and drug development in OA treatment.

**Methods**: This study was performed on 60 patients with knee osteoarthritis, 18 males (30%) and 42 females (70%), all diagnosed as osteoarthritis of one or both knees. Their ages ranged from (40–65) years. The duration of their disease ranged from one to 15years. The control groups were 8 males (32%) and 17 females (68%), their ages ranged from (40–65) years. The patients were allowed to continue on the medications that they have pro inflammatory cytokines (IL-1β) and degradative enzymes (MMP-13) are measured.

- Clinical assessing for pain using visual analogue scale (0–10)
- Assessing for pain, stiffness and physical functions by: (A) the WOMAC osteoarthritis index
  - (B) Lequesne’s algofunctional index
  - Assessing the flare-ups using Knee Osteoarthritis Flare Ups Score (KOFUS).

**Results**: Patients who had 3 flare-ups (during one year follow up) showed the statistically significantly highest mean IL-1β and MMP13 level. There was no statistically significant difference between patients with no flare-up, 1 flare-up and 2 flare-ups; all showed statistically significantly lower mean levels. As an increase in all these variables is associated with an increase in IL-1β and MMP13.

**Conclusions**: There is a potential role for IL-1β and MMP 13 biomarkers in assessing the development in osteoarthritis.

- IL 1 β and MMP 13 were found to be correlated positively in patients with knee OA this correlation sounded right as the expression of MMP 13 depends on the level of IL 1 β.
- Although all medications groups failed to lower the level of IL 1 β and MMP 13,yet there was a numerical difference in favor of Diacerein and NSAID.
- Patients on both Diacerein and NSAID had the lowest rate of flare ups
- It is recommended that the early measurement of biomarkers may detect cases to progress and thus stronger treatment may be given for these groups.

**Disclosure of Interest**: None declared

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**SAT0554**

**INVESTIGATION OF SELECTED BIOCHEMICAL MARKERS IN KNEE OSTEOARTHRITIS COHORT**

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**Background**: Osteoarthritis (OA) is a major cause of functional impairment and disability among the elderly. There is an unmet need for the development of biomarkers for identifying patients with high risk for OA and for monitoring drug efficacy. Specific and sensitive biochemical markers revealing the turnover of bone, cartilage, and synoval tissue may be useful for investigation and monitoring of OA.

**Objectives**: To investigate a targeted set of five biochemical markers, which reflect cartilage turnover, for their ability to evaluate the prevalence of radiographic and symptomatic knee osteoarthritis (OA) in a subsyudy from the cross-sectional Framingham OA cohort (FOA).

**Methods**: The subjects from the community-based FOA cohort were divided up based on a terminology proposed by the FNIH-OA consortium. Two main groups were defined: subjects with radiographic knee OA (RKOA, n=80) and a group with no radiographic OA (NORKOA, n=136). The presence of ROA as any Kellgren-Lawrence (KL) grade ≥ 2 or the RKOA group were further divided into two groups; those with persistent symptoms of a joint (RKOA+S, n=30) and those without (RKOA, n=50).

The presence of OA and/or pain. All confounding factors were adjusted.

**Results**: The two main groups were well-matched by age, sex, and BMI. Two biomarkers correlated negatively with BMI: C1M and CRPM. Aggrecan degradation biomarker, hAGN-X1 was negatively associated with age while the hAGN-X1 was not associated with it (Table 1). CRPM was associated with a lower risk of RKOA+S. Interestingly, hPro-C2 was associated with a higher risk of it (Table 2).

**Conclusions**: This study provides two major findings: 1) aggrecan degradation is not just aggrecan degradation and different neo-epitopes have distinct clinical relevance; 2) CRPM is a candidate biomarker of disease activity and for patient profiling. These data suggest a reference for interpretation of OA subject biomarker data in future human studies.

**Disclosure of Interest**: None declared

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**SAT0555**

**MRI-DETECTED KNEE OSTEOARTHY: NATURAL HISTORY AND STRUCTURAL RISK FACTORS AFFECTING CHANGE**

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**Background**: Although magnetic resonance imaging (MRI) has been proved to be far more sensitive than conventional radiographs to detect OP, the natural history of MRI-detected OP in older adults has not yet been described, and it is unclear whether knee structural abnormalities, including cartilage defects, cartilage volume, bone marrow lesions (BMLs), meniscal extrusion, infrapatellar fat pad (IPFP), and effusion-synovitis, can predict osteophyte change.

**Objectives**: To describe the natural history of knee MRI-detected OP, and to determine if knee structural risk factors are associated with change of MRI-detected OP in a longitudinal study of older adults.

**Disclosure of Interest**: None declared

**DOI**: 10.1136/annrheumdis-2017-eular.1744

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**Table 1. Subject characteristics of substudy**

<table>
<thead>
<tr>
<th>Covariates</th>
<th>RKOA (n=136)</th>
<th>RKOA-S (n=50)</th>
<th>RKOA-S (n=30)</th>
<th>Biomarker (Fisher transformed)</th>
<th>associations with covariates</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI, mean kg/m²</td>
<td>31.3 (7.99)</td>
<td>30.9 (7.93)</td>
<td>32.5 (7.94)</td>
<td>C1M, CRPM</td>
<td></td>
</tr>
<tr>
<td>Age, mean years (SD)</td>
<td>62.6 (8.18)</td>
<td>62.7 (7.06)</td>
<td>62.4 (7.09)</td>
<td>hAGN-X1</td>
<td></td>
</tr>
<tr>
<td>WOMAC pain</td>
<td>4.83 (3.64)</td>
<td>4.90 (3.63)</td>
<td>4.90 (3.63)</td>
<td>hAGN-X1</td>
<td></td>
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<tr>
<td>WOMAC function</td>
<td>3.20 (2.00)</td>
<td>3.20 (2.00)</td>
<td>3.20 (2.00)</td>
<td>CRPM</td>
<td></td>
</tr>
</tbody>
</table>

**Table 2. Odds ratio of OA of the sub-study. Values in bold represent associations of p < 0.05. OR data for each definition of OA using logistic regression and adjusted for age, sex, and BMI (n=total: unadjusted, n*adjusted: adjusted). CRPM are for comparison with knees with moderate subjects.**

<table>
<thead>
<tr>
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<th>OR of RKOA-S [95% CI]</th>
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<tr>
<td>C1M</td>
<td>0.69 (0.49–1.00)</td>
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<td>CRPM</td>
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**Table 3. Subject characteristics of substudy**

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