**POS1128**

**SERUM MARKERS OF GUT PERMEABILITY AND ENDOTOXEMIA IN PATIENTS WITH METABOLIC SYNDROME-ASSOCIATED KNEE OSTEOARTHRITIS: AN EXPLORATORY STUDY**


**Background:** Metabolic syndrome (MetS)-related osteoarthritis (OA) has been proposed as a distinct phenotype of OA (1). One of the many putative pathways linking MetS with OA is increased gut permeability resulting in endotoxemia, systemic inflammation, and cartilage damage. There is a lack of studies evaluating markers of gut permeability and endotoxemia in patients with MetS-associated OA.

**Objectives:** In this exploratory study, we aimed to: a. compare serum markers of gut permeability and endotoxemia in patients with knee OA and concomitant MetS vs patients with knee OA but without MetS; b. evaluate possible associations between the studied biomarkers, knee pain, function, and body mass index (BMI) in patients with MetS plus OA.

**Methods:** In this cross-sectional study, we evaluated consecutive patients diagnosed with knee OA according to ACR criteria and willing to participate in the study. MetS was defined in accordance with NCEP ATP III criteria. Knee pain and function were assessed using the WOMAC scale. Serum concentrations of gut permeability marker zonulin, lipopolysaccharide (LPS), and soluble LPS receptor (scD14) were measured using commercial ELISA kits.

**Results:** Forty patients (19 with OA plus MetS, 21 with OA), all women, mean age 65.5 years, were included in the study. The participants in the compared groups were of similar age. Patients with MetS had significantly higher BMI, increased knee pain, impaired knee function, and elevated serum C-reactive protein levels. Serum LPS, scD14, and zonulin concentrations were significantly higher (1.5 fold, 2 fold, and 3.5 fold, respectively) in patients with OA+MetS. In the latter group, serum zonulin, scD14, and LPS concentrations were moderately positively correlated with BMI. There were no correlations between the studied serum biomarkers and WOMAC knee pain, only zonulin was moderately positively associated with WOMAC knee function (Figure 1).

**Conclusion:** Our results support the hypothesis that increased gut permeability and endotoxemia may not play a significant role in OA clinical manifestations.

**REFERENCES:**


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**Disclosure of Interests:** None declared

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**POS1129**

**MAIN PREDICTORS OF STRUCTURAL PROGRESSION IN PATIENTS WITH METABOLIC PHENOTYPE OF OSTEOARTHRITIS**

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**Objectives:** To determine the main predictors of structural progression in patients with metabolic phenotype of knee osteoarthritis (OA).

**Methods:** 82 female patients with metabolic phenotype of knee OA (diagnosis of OA according to the ACR criteria, radiologic stages varying I—III according to Kellgren & Lawrence) aged 40—75 were included in this prospective study. Mean age was 59.1 ± 8.5 years (42—74), BMI was 32.5 ± 3.4 kg/m², disease duration was 13 (7—19) years. Individual case report forms, which included history of the disease, physical assessment data, VAS knee pain, WOMAC, joint status, comorbidities and previous medications, were filled out for each patient. All patients performed plain knee radiography, ultrasound and MRI (WORMS).

**Results:** 13 patients (15.9%) showed structural progression at two years of follow-up. When comparing groups with (n=13, group 1) and without (n=69, group 2) structural progression, there were no differences in terms of age, sex, age of disease onset and disease duration. However, in the progression group patients had higher bodyweight: 99 ± 12.9 vs 82.5 ± 8.1 kg (p = 0.0003), they also had higher VAS knee pain (69 (66-73) vs 54 (34-66) mm (p=0.0009), and WOMAC (359 (339-381) vs 255 (200-316) mm (p=0.0003)). More patients from the progression group had hypertension (92.3% vs 79.7%) and type 2 diabetes (100% vs 4.3%). MetS showed significant intergroup differences in terms of both frequency and severity of cartilage damage. Cartilage defects (via WORMS) were more frequent in the medial tibial compartment group 1: 50% vs 4.9%, RR=10.2, 95% CI 2.9-35.1, p=0.0004. Iden- tical trend was found when evaluating bone marrow lesions (BMLs) in the medial (75% vs 27.9%, RR=2.7, 95% CI 1.6-4.5, p=0.003) and lateral (50% vs 16.4%, RR=3.05, 95% CI 1.4-6.8, p=0.007) tibial compartments. Synovitis was verified via MRI in 100% of group 1 patients vs 56.5% (RR=1.8, 95% CI 1.4-2.2, p=0.007).

**Conclusion:** Our results showed that the most significant risk factors for structural progression of the metabolic phenotype of knee OA were high WOMAC pain, synovitis, type 2 diabetes and medial tibial compartment BMLs. Based on the selected factors and their coefficients, we have created a formula that allows to predict the risk of structural progression of metabolic OA.

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**Table 1. Discriminant function coefficients to create a model of structural progression of metabolic knee osteoarthritis**

<table>
<thead>
<tr>
<th>Factors</th>
<th>Discriminant function coefficients</th>
<th>ROC-curve</th>
</tr>
</thead>
<tbody>
<tr>
<td>WOMAC pain</td>
<td>0.00608</td>
<td>XXXX</td>
</tr>
<tr>
<td>Type 2 diabetes</td>
<td>2.11052</td>
<td></td>
</tr>
<tr>
<td>BMLs in the medial tibial compartment</td>
<td>1.3734</td>
<td></td>
</tr>
<tr>
<td>Synovitis</td>
<td>1.19864</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>6.34279</td>
<td>AUC=0.802</td>
</tr>
</tbody>
</table>

Model accuracy = 89%