INTERLEUKIN-6, BUT NOT C-REACTIVE PROTEIN, IS ASSOCIATED WITH CHANGES IN SPECKLE TRACKING DERIVED LEFT VENTRICULAR PEAK SYSTOLIC STRAIN, INDEPENDENT OF OBESITY OVER A FIVE-YEAR FOLLOW-UP PERIOD:THE CARDIA STUDY

Poster Contributions
Poster Sessions, Expo North
Saturday, March 09, 2013, 10:00 a.m.-10:45 a.m.

Session Title: Imaging: LV Systolic Function
Abstract Category: 18. Imaging: Echo
Presentation Number: 1142-348

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Objective: We evaluated the association of obesity, interleukin-6 (IL-6), and C-Reactive Protein (CRP) levels with speckle tracking derived left ventricular (LV) 4 and 2 chamber global longitudinal peak systolic strain (PSS4 and PSS2 respectively) over a five-year follow-up period.

Methods: Baseline CRP and IL-6 values were obtained from Year-20 (Y20) data of the CARDIA study and were related to PSS4 and PSS2 measured from echocardiograms performed in Year-25 (Y25). Multivariable models were adjusted for age, sex, race, systolic blood pressure (SBP), current use of antihypertensive medications, current smoking status, heart rate and fasting glucose levels obtained at Y20. These were used to evaluate the linear association between log IL-6, log CRP, body mass index (BMI), and PSS4/PSS2.

Results: PSS4 was measured in 1,489 participants and PSS2 in 1,144. 41% were male, 56% were Caucasian, and 44% were African American. The mean ± SD values for age, CRP, IL-6, PSS4, PSS2 and BMI were 45.2±3.6 years, 2.8±4.8 mg/L, 2.6±3.04 pg/ml, -14.5±2.5%, -15.84±2.9 % and 28.9±6.9 Kg/m2 respectively. Pearson’s correlation coefficient between BMI and CRP was 0.52 (p<0.001), and 0.37 (p<0.001) between BMI and IL-6. Associations between CRP, IL-6, BMI, PSS4 and PSS2 in univariate and multivariable models are shown in Table1.

Conclusion: After adjusting for traditional risk factors, IL-6 levels were independently associated with changes in PSS4 and PSS2. Obesity mediated the association between CRP and PSS4/PSS2.

<table>
<thead>
<tr>
<th></th>
<th>PSS4 (%)</th>
<th>Regression Coefficient (p-value)</th>
<th>N=1,489</th>
<th></th>
<th>PSS2 (%)</th>
<th>Regression Coefficient (p value)</th>
<th>N=1,144</th>
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<tbody>
<tr>
<td></td>
<td>Model1</td>
<td>Model2</td>
<td>Model3</td>
<td>Model1</td>
<td>Model2</td>
<td>Model3</td>
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<tr>
<td>Log IL-6</td>
<td>0.62 (&lt;0.001)</td>
<td>0.36 (&lt;0.001)</td>
<td>0.19 (0.02)</td>
<td>0.59 (&lt;0.001)</td>
<td>0.10 (0.001)</td>
<td>0.26 (0.02)</td>
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<tr>
<td>Log CRP</td>
<td>0.37 (&lt;0.001)</td>
<td>0.22 (&lt;0.001)</td>
<td>0.03 (0.63)</td>
<td>0.3 (&lt;0.001)</td>
<td>0.13 (0.04)</td>
<td>-0.003 (0.96)</td>
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<tr>
<td>BMI</td>
<td>0.05 (&lt;0.001)</td>
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<td></td>
<td>0.03 (0.02)</td>
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Table 1. Association between IL-6, CRP, BMI and a) PSS4 and b) PSS2 over a five-year follow-up period
IL-6: Interleukin 6, CRP: C Reactive Protein, BMI: Body Mass Index, PSS4 and PSS2: 4 and 2 Chamber global longitudinal peak systolic strain respectively
Model 1: Univariate Analysis
Model 2: Adjusted for age, sex, race, systolic blood pressure, use of anti-hypertensive medications, fasting glucose levels, heart rate and smoking + log CRP OR log IL-6
Model 3: Adjusted for age, sex, race, systolic blood pressure, use of anti-hypertensive medications, fasting glucose levels, hart rate, smoking status + log CRP + log IL-6 + BMI