Women with higher BMI do not have Higher Recurrence Scores (RS)-a Single Institution Series

Maria K. Pomponio BA, Susanna M. Nazarid MD, PhD, Julia C. Tchou MD, PhD
Department of Surgery, Perelman School of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania

**INTRODUCTION**

Obesity is Prognostic of Poor Outcome in Breast Cancer Patients

Eastern Cooperative Oncology Group

- 685 women with stage I-II breast cancer enrolled in 3 clinical trials
- Obesity was associated with diminished DFS, OS, and breast cancer specific survival in ER+/HER2- breast cancer, but not triple-negative or HER2+ disease

Meta-analysis

- Pooled analysis of 82 studies assessing the relationship between higher BMI and survival
- Compared to normal weight women, obese (BMI >30), and overweight (BMI 25.0-<30.0) women had higher risks of overall mortality and breast cancer specific mortality

The Relationship between Oncotype DX recurrence score (RS) and BMI is largely unexplored

Muniz et al
- 533 eligible women, 22% had metabolic syndrome
- No correlation between metabolic syndrome and higher RS

Lohrner et al
- 166 ER+, node negative patients breast cancer patients who had both Oncotype DX and BMI data
- Obese patients (BMI >30) had similar proportions of low, intermediate, and high RS tumors.

Wellgian Group
- 125 patients with ER+ breast cancer who had Oncotype DX and BMI within one year of diagnosis
- BMI was recorded at diagnosis, 6 months and 12 months
- No correlation was seen between RS and BMI at diagnoses, in 6 months and at 12 months respectively
- Changed in BMI from diagnosis to 12 months was not associated with RS

**METHODS**

- **Oncotype DX results available**
- **BMI data available**
- **BMI not used**

**RESULTS**

<table>
<thead>
<tr>
<th>BMI</th>
<th>RS &lt;25</th>
<th>RS 25-30</th>
<th>RS &gt;30</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>187</td>
<td>15.08%</td>
<td>30.6%</td>
<td>54.4%</td>
<td>0.02</td>
</tr>
<tr>
<td>328</td>
<td>12.5%</td>
<td>30.6%</td>
<td>57.0%</td>
<td>0.05</td>
</tr>
<tr>
<td>83</td>
<td>14.1%</td>
<td>30.6%</td>
<td>51.3%</td>
<td>0.01</td>
</tr>
</tbody>
</table>

**DISCUSSION**

- **Future directions**
  - Expand our cohort to include patients with 1-3 positive axillary lymph nodes, given the updated inclusion criteria of Oncotype DX
  - Future work is needed to elucidate the genetic and epigenetic effects of obese state on tumor progression.

**REFERENCES**


**HYPOTHESIS**

We hypothesize that tumors in women with higher BMI have higher recurrence scores (RS)

**FIGURE 1** - Study scheme and patient inclusion/exclusion.