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Red Meat and Inflammation and A1c in Breast Cancer Women (P05-038-19)Brandon Khuu,¹ John Pierce,² and Tianying Wu¹¹San Diego State University; and ²University of California at San Diego

Objectives: To determine the associations of processed and unprocessed red meat with serum C-reactive protein (CRP) and hemoglobin A1c (HbA1c) among breast cancer survivors. We hypothesized that processed and unprocessed red meat can increase CRP and HbA1c. These associations will not be completely mediated by body mass index (BMI).

Methods: Using a cross-sectional design, we analyzed data collected from 3088 breast cancer survivors who enrolled in the Women's Healthy Eating and Living (WHEL) Study and had provided four detailed 24-hour dietary recalls over a 3-week period along with a blood sample to validate dietary pattern and measure plasma CRP and HbA1c from washed red blood cells. Intakes of processed and unprocessed red meat were extracted from dietary recalls. CRP concentrations were measured using high-sensitivity electrochemiluminescence assay. HbA1c was measured using ion exchange high-performance liquid chromatography.

Results: We found significant positive associations for both unprocessed and processed red meat with plasma CRP and HbA1c. In multivariable adjusted models, compared to women with the lowest quintile intakes of unprocessed red meat, women with highest quintile had a 19% increase of CRP and had an 11% increase of HbA1c after adjustment for BMI. Further adjustment for total vegetable intake did not materially change these associations. We observed similar patterns for processed red meat. The magnitudes of the associations of processed red meat with CRP and HbA1c were similar to that of unprocessed meat with CRP and HbA1c after adjustment of BMI. P-values for trends were less than 0.002 for all of these associations.

Conclusions: CRP and HbA1c are strong predictors for breast cancer prognosis and development of comorbidities (e.g., diabetes). Although many studies examined the association of red meat with CRP and HbA1c in general healthy population, few studies were conducted among breast cancer survivors. Our results for the first time demonstrate that the positive associations between unprocessed and processed red meat consumption and inflammation and hyperglycemia are not fully mediated by BMI among breast cancer women.

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