Living in a Food Desert Affects Gynecologic Cancer Outcomes

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Background: Our aim is to investigate the effects of food insecurity on gynecologic cancer survival outcomes. According to the 2022 America's Health Ranking Annual Report, Louisiana has the worst health index in the United States with rankings in the bottom quintile among all categories of social and economic factors, physical environment, clinical care, behaviors, and health outcomes[1]. We hypothesize that patients who live in a food desert are more likely to be diagnosed at a more advanced cancer stage and have worse 5-year overall survival outcomes than patients who live in a food-secure environment.

Methods: Census-tract level data was used from the USDA Food Access Research Atlas (FARA) and the Louisiana Tumor Registry (LTR) to assess how food insecurity as defined by low-access and low-income (LILA) areas affects cancer stage at diagnosis and 5-year survival outcomes. To have sufficient data to calculate 5-year survival outcomes, FARA data from 2015 was used for analysis. Assuming food access does not significantly change within two years of data collection, deidentified patient data from the LTR spanning from 2013 to 2017 was used with a focus on cervical, uterine, and ovarian cancers. Univariate, multivariable logistic regression, and Cox proportional hazard regression models were employed. The covariates included in this study include race, age, insurance status, BMI, tobacco use, and Charlson comorbidity index.

Results: Our results show that patients who reside in a LILA neighborhood are 1.60 times more likely to be diagnosed with advanced cervical cancer and 1.40 times more likely be diagnosed with advanced uterine cancer than patients who live in a food-secure neighborhood. Multivariate analysis reveals that LILA status is independently associated with an increased risk of being diagnosed at an advanced stage. In terms of 5-year survival outcomes, patients in the LILA group have a higher mortality rate with univariate analysis in patients with cervical, uterine, and ovarian cancers; however, this significance diminishes after adjusting for other variables.

Conclusions: The results of this study confirm that living in a food desert not only increases the risk of being diagnosed with a primary malignancy at an advanced stage but decreases the chances of survival at 5 years. Although poor outcomes have a strong correlation with race, LILA status may be a surrogate for poor social support. A major caveat of this study is that census-tract data may be good for assessing health trends at the public health level but are not reliable for county- or neighborhood-specific interventions. However, recognizing the increased risk of gynecological morbidity related to food security can offer an important screening tool and point of intervention for women with high risk factors.