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Are dietary glycemic index and load associated with breast cancer?

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Objective: To investigate the association between dietary glycemic index and glycemic load with breast cancer, considering menopausal status, in women from Central-West, Brazil. **Methods:** This was a case-control study with non-metastatic breast cancer women and controls (1:2), matched by age (±5 years), body mass index (±5 kg/m^2), and menopausal status (pre- and post-menopause). The study followed the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) checklist. Body composition was measured by dual-energy X-ray absorptiometry (DXA) method, the food intake by three 24-hour dietary recalls, and the food quality was analyzed by the NDR-S©. Fasting blood glucose and insulin blood tests were measured after 12-hours of fasting. Multivariate logistic regression was used to estimate the adjusted odds ratio (ORadj) between glycemic index, glycemic load, and breast cancer. The multivariate model was defined using directed acyclic graphs. Values of $p<0.05$ were considered statistically significant. **Results:** A total of 334 women participated in the study; most of them were pre-menopausal (58.0%). The mean age was similar between the groups (51.2 years ±11.5 case vs. 51.3 years ±10.8 control). Women in the control group had higher education and income than the case group ($p<0.001$). Body composition, serum glycemic profile, and behavioral variables did not differ between groups and menopausal status. The mean consumption of saturated ($p=0.026$) and monounsaturated ($p=0.048$) fat was higher in the control group than in the case group for the total sample, and a higher consumption of protein ($p=0.043$), cholesterol ($p=0.002$), and saturated fat ($p=0.018$) was observed in controls only in the post-menopausal group. In the logistic regression, only income was associated with the outcomes. While lower income, there were greater chances of developing breast cancer (ORadj 1.20; 95% confidence interval [CI] 1.00–1.50; $p<0.001$). The exposure variables were not associated with the outcomes (glycemic index ORadj 1.00; 95%CI 1.00–1.00; glycemic load ORadj 1.02; 95%CI 0.99–1.04). **Conclusion:** Dietary glycemic index and load were not associated with the development of breast cancer in this population.

Keywords: breast neoplasms; diet; food consumption; body composition.