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949 – Adiponectin levels and clinical-demographic associations in breast cancer: a cross-sectional analysis

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Background: Obesity and overweight in women with breast cancer have been increasing significantly, affecting two-thirds of cancer survivors. Adipocytes produce and release adiponectin, however, in general, the greater an individual's body fat mass is, the lower their adiponectin levels are. Adiponectin is an adipokine with anti-inflammatory and antitumoral properties, yet its role as a metabolic biomarker in breast cancer remains poorly understood. Age-related changes in adipose tissue function may modulate adiponectin levels and influence cancer risk and prognosis. The aim of this study is to investigate the association between serum adiponectin levels and clinicopathological characteristics in breast cancer patients.

Methods: This cross-sectional analysis included 29 breast cancer patients stratified by adiponectin levels using a cutoff of 9.4 µg/mL (low: <9.4 µg/mL, n=15, 51.7%; high: ≥9.4 µg/mL, n=14, 48.3%). Serum adiponectin was measured via enzyme-linked immunosorbent assay (ELISA). Logistic and linear regression analyses were performed to assess associations with demographic, clinical, and metabolic variables.

Results: Serum adiponectin levels ranged from 2.1 to 38.7 µg/mL (mean: 12.4±9.4 µg/mL, median: 9.4 µg/mL). Age was the only variable significantly associated with elevated adiponectin levels in the logistic regression analysis (OR=1.13, 95%CI 1.01–1.28, p=0.039, McFadden R²=0.40). No significant associations were found between adiponectin and body mass index (BMI), tumor size, lymph node status, endocrine receptor status, muscle strength, or cellular integrity markers. Linear regression analysis confirmed the absence of significant predictors for continuous adiponectin values.

Conclusions: Age emerges as a critical metabolic modifier of adiponectin regulation in breast cancer patients. These preliminary findings suggest that adiponectin may represent a distinct age-dependent metabolic phenotype.

Ethics: Research Ethics Committee Approval (CAAE 50717115.4.3002.5078).

Registry: REBEC: RBR-3rf99vw.

Keywords: adiponectin; breast cancer; metabolic biomarker; age.