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1153 – Obesity and increased risk of the molecular subtype of breast cancer

Ana Beatriz Bezerra Pinheiro, Edesio Martins, Nayara Alves de Freitas Lemos; Ruffo de Freitas-Junior, Tatiane Nunes da Silva Rodarte, Pedro Henrique Lessa de Oliveira

¹Empresa Brasileira de Serviços Hospitalares– Goiânia (GO), Brazil.

²Universidade Federal de Goiás – Goiânia (GO), Brazil.

Introduction/Justification: breast cancer is composed of distinct molecular subtypes. Obesity is linked to tumor progression, particularly breast angiogenesis.

Methods: An observational, retrospective, and cross-sectional study, based on medical records and questionnaires. The study was conducted in the physiotherapy outpatient clinic at CORA, an advanced breast cancer diagnostic center, in 2025 and 2026. Patients who were weighed and had immunohistochemistry results were included; patients with missing data were excluded.

Results: In the current database, 63 participants presented a usable molecular subtype after excluding duplicate entries and records with missing outcome data. The preliminary distribution was: Luminal A 14 (22.2%), Luminal B 33 (52.4%), HER2 8 (12.7%), and triple-negative 8 (12.7%). Three binary contrasts were defined: triple-negative vs. others, HER2 vs. others, and luminal vs. non-luminal. Due to limitation of BMI data availability, 28 patients were included for this predictive model. Among the patients analyzed, 22 (78.6%) had a BMI above normal levels, 12 (54.5%) were overweight, 4 (18.2%) had grade I obesity, 5 (22.7%) had grade II obesity, and 1 (4.6%) had grade III obesity. Among the molecular subtypes of these 22 patients, 9 (40.9%) were Luminal HER2-positive, 6 (27.3%) were Luminal B, 4 (18.2%) were HER2-positive, 2 (9.1%) were Luminal A, and 1 (4.5%) was triple-negative. Descriptively, mean BMI was similar between luminal and non-luminal tumors, whereas the HER2-positive group exhibited a trend toward towards a higher mean BMI and the triple-negative group a lower mean age. Due to the heterogeneity in the menopausal status registry and the practical unavailability of cytokine levels, the final inferential analysis will be performed after harmonization of the database.

Conclusion: Obesity appears to be prevalent among patients with breast cancer and may be associated with specific molecular subtypes. The results support the idea that estrogen and progesterone receptors are influenced by adipose tissue.

Ethics: Research Ethics Committee Approval (CAAE 94835826.9.000.5078).

Keywords: breast cancer; obesity; molecular medicine; immunohistochemistry.