

## EPIDEMIOLOGY, RISK, AND PREVENTION – OTHER

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# CROSS-SECTIONAL ANALYSIS OF CLINICAL AND MORPHOLOGICAL FACTORS OF BREAST CANCER IMMUNOPHENOTYPES: A COMPARATIVE STUDY OF TWO DIFFERENT METHODOLOGIES OVER A 24-YEAR HISTORICAL SERIES

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**Introduction:** Breast cancer (BC) is the most incident form of cancer in women worldwide. The widespread use of breast screening programs, as well advances in molecular biology, and new drugs in chemotherapy have contributed to the recent survival rate improvement in high income countries. Furthermore, the study of cancer genome led to the elucidation of the intrinsic subtypes of invasive breast cancer (IBC), consequently, the success rate of targeted therapies improved the outcome in patients. However, considering that immunohistochemistry (IHC) is one of the main methods to determine the profile of protein expression in surgical pathology, most antibodies used have a presumed or already established role and represent proteins whose transcription has been previously described in genetic profile studies. **Objectives:** Describe the prevalence of IBC in women admitted to a public hospital in Brazil from 1994 to 2018, to establish a correlation between two models of immunohistochemical analysis, the 13th St. Gallen Conference classification and the biomarker-defined subtypes based on HER2 and estrogen receptor (ER) status, and to investigate the profile of these cases. **Methods:** Retrospective database analysis was performed. 1,335 women with histologic diagnosis of IBC were included in the study from a public hospital in Brazil between 1994 and 2018. Frequencies and univariate associations were estimated by using chi-square tests. Agreement between the immunohistochemical groups were tested by using Cohen's kappa coefficients. **Results:** The mean age was 56.1 years. The most prevalent subtype was luminal B/HER2 and the frequency of tumors with worse prognosis was 62.7%. An association was found between histological grade 3 (G3) and the worst prognostic subtypes: non-luminal A (OR=31.18; 95%CI 13.76–70.64), TNBC (OR=8.77; 95%CI 6.20–12.41), non-ER+/HER2- (OR=5.37; 95%CI 4.11–7.04) and ER-/HER2- (OR=8.50; 95%CI 6.10–11.85). A similar association was found for nuclear G3: non-luminal A (OR=6.3; 95%CI 4.29–9.47), TNBC (OR=5.14; 95%CI 3.64–7.31), non-ER+/HER2- (OR=4.83; 95%CI 3.80–6.15) and ER-/HER2- (OR=5.41; 95%CI 3.92–7.50). When the two models of immunohistochemical analysis were compared, the results showed an agreement rate of 99.48% to 100%. **Conclusions:** Our results show that most cases had worse outcomes, and there was absolute agreement between the two models of immunohistochemical analysis. These results can contribute to institutions that do not have molecular investigation, enabling accessible tools in routine practice.