RELATIONSHIP BETWEEN MORPHOLOGICAL FORMS AND IMMUNOHISTOCHEMICAL (IHC) MARKERS IN BREAST CANCER

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Relevance: *Breast cancer is one of the most common oncological diseases among women, and the incidence and mortality rates remain high. According to the modern classification, the biological characteristics of a tumor depend not only on its morphological structure but also on its immunohistochemical (IHC) profile. Markers such as estrogen receptor (ER), progesterone receptor (PR), HER2/neu, and the Ki-67 proliferative index play an important role in determining the prognosis of the disease and in choosing treatment strategies. Therefore, identifying the relationship between the morphological type of the tumor and the IHC profile is an important issue for clinical practice.*

Objective: *To study the expression of immunohistochemical markers in different morphological forms of breast cancer and to perform a comparative analysis of their relationships.*

Materials and Methods

The study included surgical and biopsy specimens from 120 patients with breast cancer treated between 2022 and 2024.

Morphological examination was performed using hematoxylin–eosin staining. Immunohistochemical analysis included the following markers: ER (estrogen receptor), PR (progesterone receptor), HER2/neu, and Ki-67 proliferation index.

The results were evaluated using a semi-quantitative method. Statistical analysis was performed using the SPSS software, and $p < 0.05$ was considered statistically significant.

Results

According to the study results, invasive ductal carcinoma (IDC) was the most common type (78%), followed by invasive lobular carcinoma (ILC) (15%) and other rare types (7%).

The Luminal A phenotype was mainly detected in low-grade differentiated tumors and was characterized by positive ER and PR expression and a low Ki-67 index.

HER2-positive and triple-negative forms were characterized by high proliferative activity (Ki-67 >30%) and were more frequently observed in high-grade tumors (G3).

A significant increase in the Ki-67 index was observed with an increase in the tumor differentiation grade ($p < 0.05$).

Conclusion

There is a statistically significant relationship between the morphological type of breast cancer and its immunohistochemical profile.

IHC markers play an important diagnostic role in determining the biological behavior of the tumor, assessing prognosis, and selecting individualized treatment strategies.

The combined use of morphological and molecular-immunohistochemical approaches contributes to improving the effectiveness of personalized therapy.