

Luminal breast tumors in the Tissemsilt region - Algeria: Effect of estrogen and progesterone on their development

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Abstract:

Introduction:

Breast cancer is a highly heterogeneous disease and the most common malignancy in women. Despite advances in diagnosis and therapy, breast cancer is estimated to account for 1 in 6 cancer deaths worldwide, representing the leading cause of cancer death in women.

Multifactorial condition with epidemiological and genetic criteria varying from one country to another. In the Tissemsilt region in Algeria, it can be classified into five molecular subtypes based on tumor marker expression, each one with different prognoses, which may benefit from more personalized therapeutic management.

Objective of the study:

The aim of this study was to describe the immunohistochemical characteristics of each molecular subtype of breast cancer to gain a better understanding of its tumor biology and to identify potential deregulated markers specific to the molecular subtypes, especially the luminal cancers.

Materials and Methods:

A retrospective, descriptive, and analytical study was performed on all cases of breast carcinoma; between 01 January 2021 and 31 December 2023, our study was conducted on 154 patients in the Tissemsilt region, that received histological and immunohistochemical examination at the Department of Pathology of the EPH in Tissemsilt, Algeria. This analyze is included age groups, histological types, SBR grade, TNM classification and hormone receptors. The tumors were previously preserved in paraffin blocks and this work was supplemented by a prospective immunohistochemical study at the pathology laboratory of Dr. TAKARLI in Mostaganem.

Results:

In our study, 60% of the patients were under 50 years old, with ages ranging from 30 to 88 years. The predominant histological type was invasive ductal carcinoma (IDC), and the most common SBR grade was grade II (79% of patients). Luminal B was the most common molecular subtype (56%), followed by luminal A (29%), triple-negative (10%), and HER2+ (3%). The Ki67 proliferation index was positive in 65.58% of cases and negative in 30% of cases.

Conclusion:

Our study confirmed that breast cancer currently affects relatively young women. Following luminal A, the most dominant molecular subtype is luminal B, which presents a more aggressive profile than other subtypes. We recommend systematic testing for hormone receptors, HER2 oncoprotein, and Ki-67 proliferation index. Such molecular classification has therapeutic implications and contributes to improved management of patients with breast cancer.

Keywords: Breast cancer, luminal subtype, Immunohistochemical study and Ki67 proliferation index.