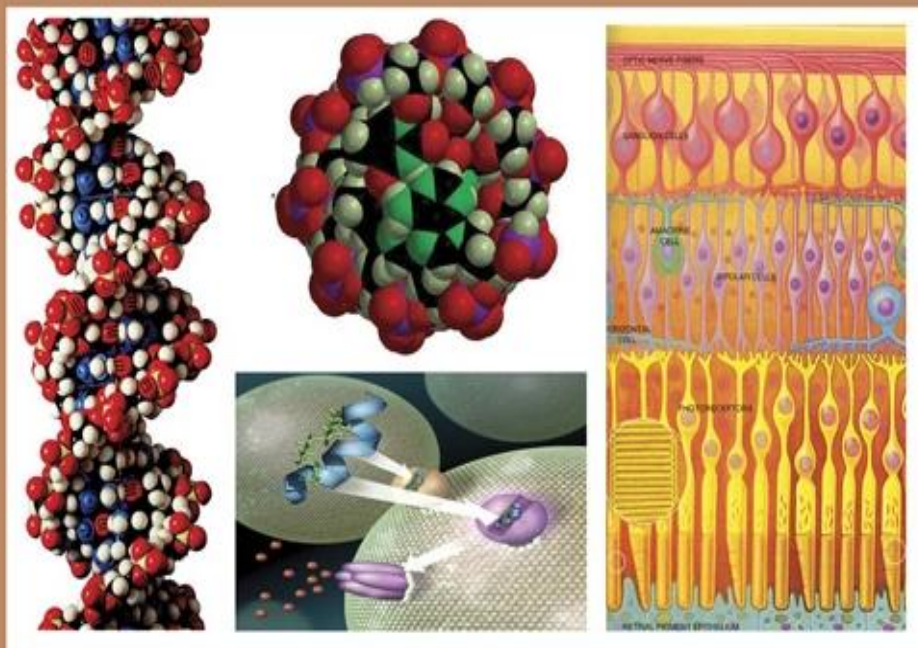




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Medical Management of Women with Breast Cancer

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ABSTRACT

Breast cancer in Algeria, like everywhere else in the world, is a major public health problem. For several years, women with breast cancer have benefited from increasingly effective and more and more personalized treatments, the management of which depends on the stage of development of the tumor, its characteristics, age and condition. patient's state of health. Since the 2000s, patients admitted to the pathological anatomy service of the CHU of Sidi bel abbés have been systematically evaluated HER2, in order to recruit those who could benefit from targeted therapy (Herceptin®). Comes after the evaluation of the amplification status of this gene by fluorescence in situ hybridization (FISH) of intermediate scores (HER2 score 2). Other markers are evaluated for women with this cancer, for better therapeutic management (hormone receptors, Ki67, etc.), see monitoring in the event of a possible relapse.

INTRODUCTION

Five to 10% of these cancers have a hereditary genetic origin; 85 to 90% of cases (so-called sporadic or non-hereditary form) have poorly understood environmental origins. A significant proportion of sporadic breast cancers are induced by hormonal treatments in women with a predisposition to this type of cancer (PM Ravdin *et al*, 2007). The cancer cells of hormone-sensitive breast cancers are characterized by having hormone receptors. These are proteins located on the surface of the cancer cell. They detect estrogen or progesterone passing through the bloodstream and pick them up. The binding between hormones and their receptors on cells triggers the stimulation of the growth of these cancer cells. It is an examination of cells under a microscope that determines whether or not they have estrogen and/or progesterone receptors. This examination, called anatomopathological examination, is performed on a fragment of the tumor taken by biopsy, or on the tumor removed by surgery. 80% of breast cancers are hormone-sensitive or hormone-dependent (Nagata, 2009).

Proliferation is one of the key parameters of the tumor profile. The genomic grade, as well as the molecular signatures (Oncotype DX™, MammaPrint®), have reactivated the interest of Ki-67, which is easily used, inexpensive and accessible to any laboratory of pathological anatomy (Simon RM *et al.*, 2009).

A significant number of molecular markers have been studied to determine their ability to predict prognosis, response to treatment, or both. With regard to breast cancer, certain biological and molecular markers are already used routinely by pathologists and biochemists. It's about:

- cell proliferation markers such as ki-67
- progesterone or estrogen receptors
- Her2 (a membrane protein).

PATIENTS AND METHODS

We were able to follow ninety women with breast cancer, from their diagnosis to their treatment orientation. The first treatment is the histological study of the various samples ranging from biopsy to mastectomy. Then the evaluation according to the histological results of certain proliferation markers (Ki67) and for the differential diagnosis (EMA, CytK, Actin...), comes after the evaluation by immunohistochemistry (IHC) of the HR (hormone receptors) and the status HER2. For score 2 we used three in situ hybridization methods; Argentina (SISH), DDual (DDISH) and fluorescent (FISH), we opted for the latter for the majority of our ambiguous cases.

RESULTS

The patients are aged between 30 and 76 years with a peak frequency in the age group between 40 and 45 years. 46.22% are postmenopausal and 51.89% are not, the rest are in pre-menopause. In terms of the histological type, invasive ductal carcinomas (ICC) are predominant with 52.87%, and 27.58% are polymorphic ductal carcinomas, and 19.54% are invasive lobular carcinomas (CLI).

The hormonal status of these breast cancer patients is 51.89% premenopausal and 46.22% are, and 1.89% are premenopausal.

The risk of developing breast cancer also increases based on family history. Thus, the risk of developing breast cancer is greater if the mother or one of the sisters has had breast cancer. This risk is further increased if they have had their

cancer before age 50 and more than one has been affected. The patients questioned on their family history allowed us to establish three categories according to their degree of kinship with women who have developed breast cancer; the 1st category is that of first-degree relatives (52.95%) the second category of second-degree relatives is 37.25% and the third category whose affected relatives are distant, or even non-existent in the family, are 9, 8%.

The tumor size at the time of diagnosis, revealed a percentage change; for T1 = 12.08%; T2 = 46.16%; T3 = 17.58%; T4 = 24.19%, with regard to grades; GI = 5%; GII = 62%; GIII = 33%. 55.55% of the women presented with lymph node infiltration (N +), and 44.45% are N-, and after the complete examination of extension 74.20% of the patients showed no sign of metastases.

Hormonal receptors. Measuring estrogen receptors and progesterone receptors inside cancer cells is a common test when cancer is found during a biopsy. This measurement is given as a percentage. The higher the percentage, which means that there are more hormone receptors in the cells, the more effective the hormone treatment will be.

HER2 is a protein. The gene encoding it is a proto-oncogene called HER2 / neu. This gene has been identified at chromosome 17q21. The term HER2 / neu stands for Human Epidermal Growth Factor Receptor-2 and is specified neu due to the consequence of its mutation (Slamon DJ et al, 1987).

Methods for determining HER-2 status.

It is possible to detect the state of overexpression or amplification of HER-2 in the laboratory by several methods. Immunohistochemistry (IHC) involves staining the protein overexpressed on the surface of cells to study the level of expression of the HER2 receptor. This method keeps morphological information. However, it is subjective and lacks

standardization. The different tests based on this principle have different degrees of precision (Press MF et al, 2002).

The Mechanism of Action of Trastuzumab Is Known:

The antibody trastuzumab binds to the extracellular region of the HER2 protein, anchored to the membrane. This receptor antibody binding causes the internalization of the HER2 receptors, which makes it inactive, blocks their dimerization so no kinase activity is possible (Slamon DJ et al, 2001).

Prognostic Factor:

Control whose initial state is associated with relapse-free survival or overall survival regardless of the therapy used;

Predictor:

Control whose initial state is associated with the response or absence of response to a given treatment. An interaction demonstration is necessary to validate it (Sterne J et al, 2019).

Conclusion:

Despite undoubted progress in understanding the proliferation and spread of breast cancer, there are still many gray areas. It is nevertheless evident that the lymphatic system plays a key role in this development. This involvement occurs through tumor cell invasion into the lymphatic channels or through the more elaborate secretion of growth factors or chemokines within the lymphatic system. These different stakeholders could also be potential targets for the treatment of breast cancer.

Ethical Approval:

All applicable international, national, and institutional guidelines for the care and use of patients.

REFERENCES

Nagata,Chisato, (2009) :Factors to Consider in the Association Between Soy Isoflavone Intake and

Breast Cancer Risk .*Journal of Epidemiology*, vol. 20, n° 2, , p. 83-89 (ISSN 13499092, DOI 10.2188/jea.JE20090181).

PM Ravdin, KA Cronin, N Howlader et coll. (2007): The decrease in breast-cancer incidence in 2003 in the United States. *New England Journal of Medicine (NEJM)*, 356:1670-1674.

Press MF, Slamon DJ, Flom KJ et al. (2002): Evaluation of HER-2/neu gene amplification and overexpression: comparison of frequently used assay methods in a molecularly characterized cohort of breast cancer specimens. *Journal of Clinical Oncology (JCO)*,20:3095-105

Simon RM, Paik S, Hayes DF. (2009):Use of archived specimens in evaluation of prognostic and predictive biomarkers. *Journal of the National Cancer Institute*, 101:1446-52.

Slamon DJ, Clark GM, Wong SG, Levin WJ, Ullrich A, McGuire WL, (1987):Human breast cancer: correlation of relapse and survival with amplification of the HER2/neu oncogene. *Science*,235:177-82

Slamon DJ, Leyland-Jones B, Shak S et al. (2001):Use of chemotherapy plus a monoclonal antibody against HER2 for metastatic breast cancer that overexpresses HER2. *New England Journal of Medicine (NEJM)*, 344:783-792

Sterne JAC, Savović J, Page MJ, Elbers RG, Blencowe NS, Boutron I, et al. (2019):RoB 2: a revised tool for assessing risk of bias in randomised trials. *British Medical Journal*;366: 14898.