

PROGNOSTIC ROLE OF ESTROGEN AND PROGESTERONE RECEPTORS IN THE TREATMENT OF BREAST CANCER

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Estrogens and progesterone play the role of endocrine growth factors. They are pre-initiators, initiators and promoters of breast cancer (BC). Estrogen receptor (ER) expression is determined in 50–70 % of BC. In about 50 % of cases, it is accompanied by progesterone receptor (PR) expression. Tumors expressing ER and especially both ER and PR tend to be sensitive to hormone therapy and have a more favorable prognosis. Isolated expression of PR is an unfavorable prognostic sign.

Keywords: breast cancer, hormones, estrogen and progesterone receptors.

Breast cancer is an extremely heterogeneous tumor; differentiate in its morphological, biological and genetic properties. Currently, breast cancer is the most common cancer in women in most countries of the world, where there is a steady increase in the number of cases and deaths from this pathology [3].

The mammary glands are the target organs for the effects of steroid hormones, as well as direct or indirect effects of prolactin, gonadotropins, thyroid hormones, adrenal cortex, insulin and growth factors. Hormones exert their influence at the cellular level, binding to specific receptors in the tissues of the mammary glands [2]. Steroid hormone receptors are proteins that specifically and selectively bind steroids after their penetration into the cell and mediate their biological effects [1]. When analyzing the hormonal dependence of the tumor and predicting the effectiveness of endocrine therapy, the level of expression of ER and PR is determined.

To determine the hormonal status, the immunohistochemical method (IHC) is used, as well as the method of radioimmunological analysis (RIA). The tumor is receptor-positive by the IHC method if the number of stained cells is 10 % or more, and receptor-negative if less than 10 %, respectively. Using the RIA method, the level of ER and PR is determined. A tumor is receptor-positive for RIA if it contains more than 10 fmol of specifically bound estradiol or 10 fmol of specifically bound progesterone per 1 mg of protein [4].

In the presence of estrogen and progesterone receptor expression (ER+ PR+), according to the literature, a favorable prognosis of the disease was established. In the absence of expression of one of the receptors, the effectiveness of hormone therapy will be less than in the previous case. Metastatic lymph node lesions were significantly more common in the group of patients with ER-negative breast cancer (59 %). Whereas in tumors with ER-positive status metastatic lesions of lymph vessels were observed in 42% of cases. PR-negative tumors have a worse prognosis compared to PR-positive tumors [5]. If there is no expression of both receptors, that is, the tumor is receptor-negative (ER-PR -), then in the treatment of such a tumor, hormone therapy is not effective, an aggressive course of the disease is detected and relapses more often occur in the first years.

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