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Clinical and biological factors forecast metachronous breast cancer

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**SEVENTH INTERNATIONAL CONFERENCE
ON RADIATION IN VARIOUS FIELDS OF RESEARCH**

Objective

To study the clinical (age, menstrual status, degree of prevalence of the process using the TNM system, morphological form of the tumor) and biological (estrogen and progesterone receptor content, ploidy and proliferative activity of tumor cells) predictive factors for metachronous breast cancer.

Materials and methods

The study included 210 patients with metachronous breast cancer.

Stage

With the primary tumor, 22.9% of patients were with stage I, 46.7% of patients with stage II, with stage III-IV, 19.4% were patients, with the second tumor - 31.9%, 45.7%, 15, 8% respectively.

The average age of patients with metachronous breast cancer was 47 years for the detection of the primary tumor and 52 years for the diagnosis of the second tumor.

Infiltrative forms of breast cancer growth prevailed. In 63.8% of patients with breast cancer, the reproductive function was preserved.

Materials and methods

In primary breast cancer

18.1% of patients received surgical treatment, 27.6% combined treatment, and 53.3% comprehensive treatment

In case of metachronous breast cancer

10.5% of patients received surgical treatment, 40% combined treatment, and 46.6% comprehensive treatment

Materials and methods

In primary breast cancer

neoadjuvant chemotherapy was performed in 17.2%, radiotherapy in 19.5%, chemo-radiation therapy in 10.5% cases.

In case of metachronous breast cancer

neoadjuvant chemotherapy was performed in 0.5%, radiotherapy in 4.3%, chemo-radiation therapy in 3.8% cases.

Materials and methods

25.7% of patients received an adjuvant chemotherapy treatment for the first cancer, radiation therapy was performed in 24.8%, and chemotherapy in 18.6% cases.

With metachronous cancer- 20.9%, 16.8%, 17.6%, respectively.

In 62% of cases, within 5 years after the treatment of the primary breast tumor, a second tumor was diagnosed.

In 37 patients with laser DNA cytofluorimetry, ploidy and proliferative activity of tumor cells were investigated.

Results and discussion

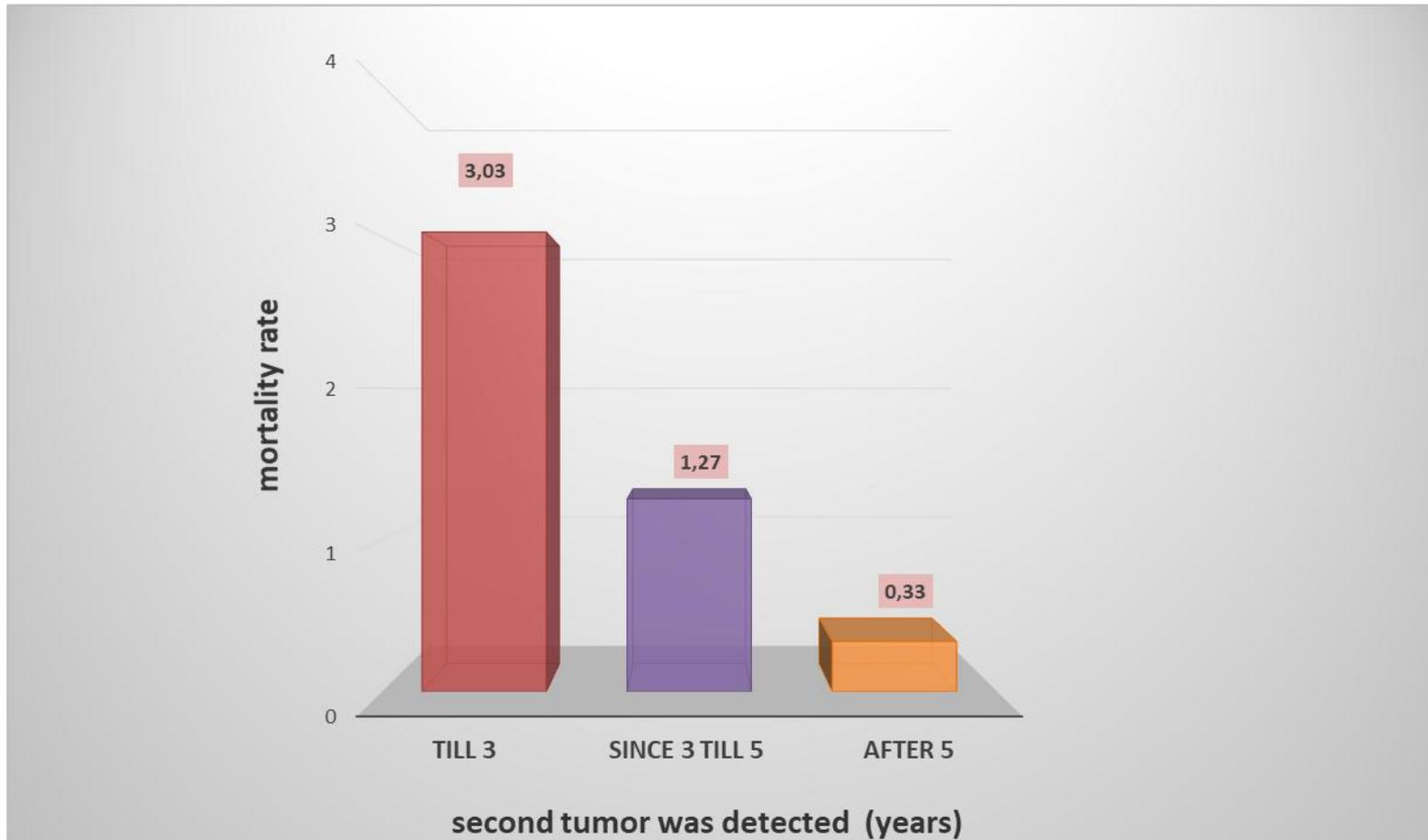
When studying the life expectancy of patients with breast cancer, it was reliably established that the time of the onset of the second tumor affects survival.

Survival in the group of breast cancer patients in whom the metachronous tumor appeared in the first 3 years after treatment was 58%, and the mortality rate was 3.03, while in the group in which the second tumor was detected after 5 years of treatment, 100% and 0.33, respectively (figure 1,2).

Patients younger than 50 years old, as well as women, in whom primary and metachronous cancer arose against the background of intact menstrual function, live significantly longer. In most of these patients, the tumor is receptor-positive, and the survival rate is 91.7%.

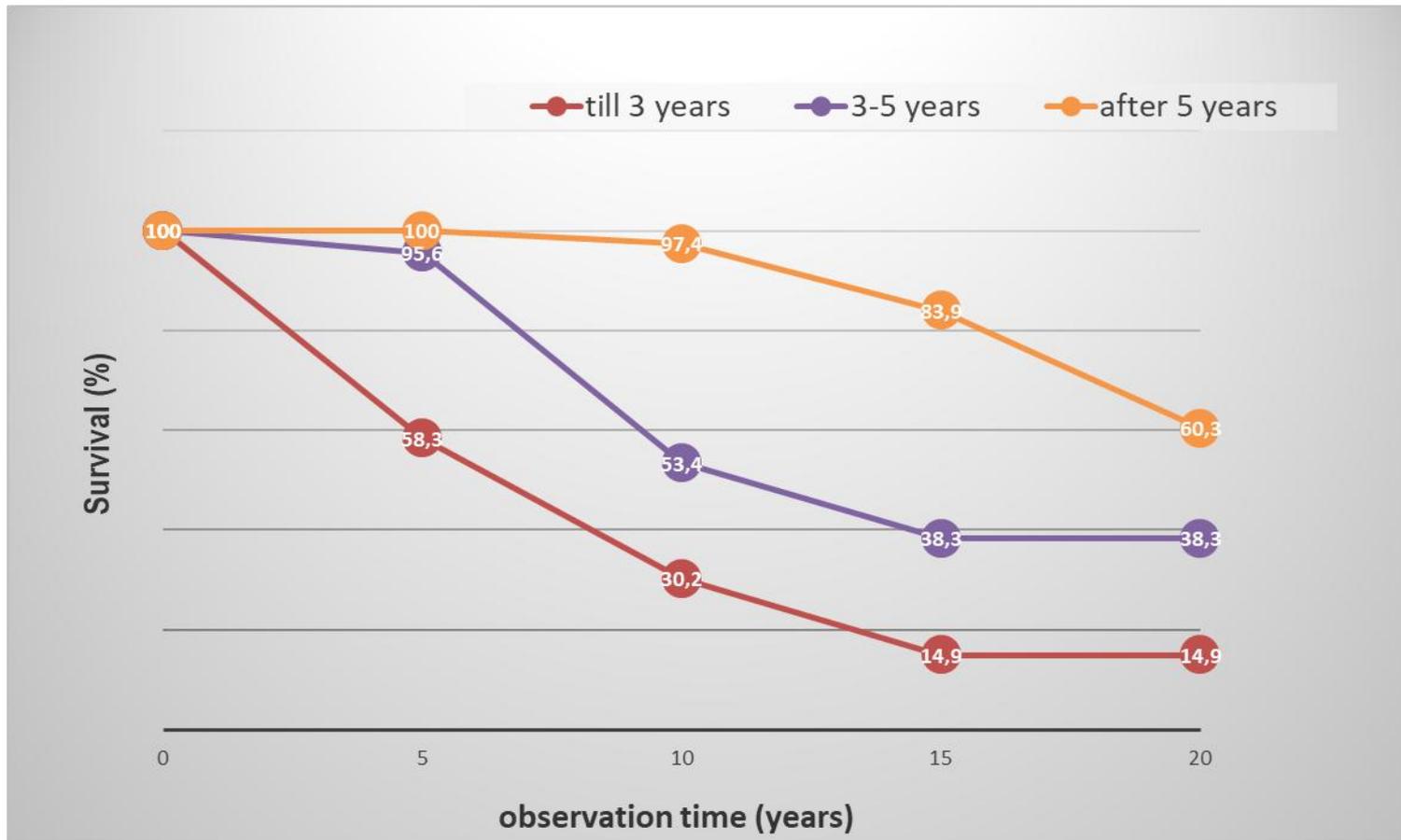
Results and discussion

Figure 1



Results and discussion

Figure 2



Results and discussion

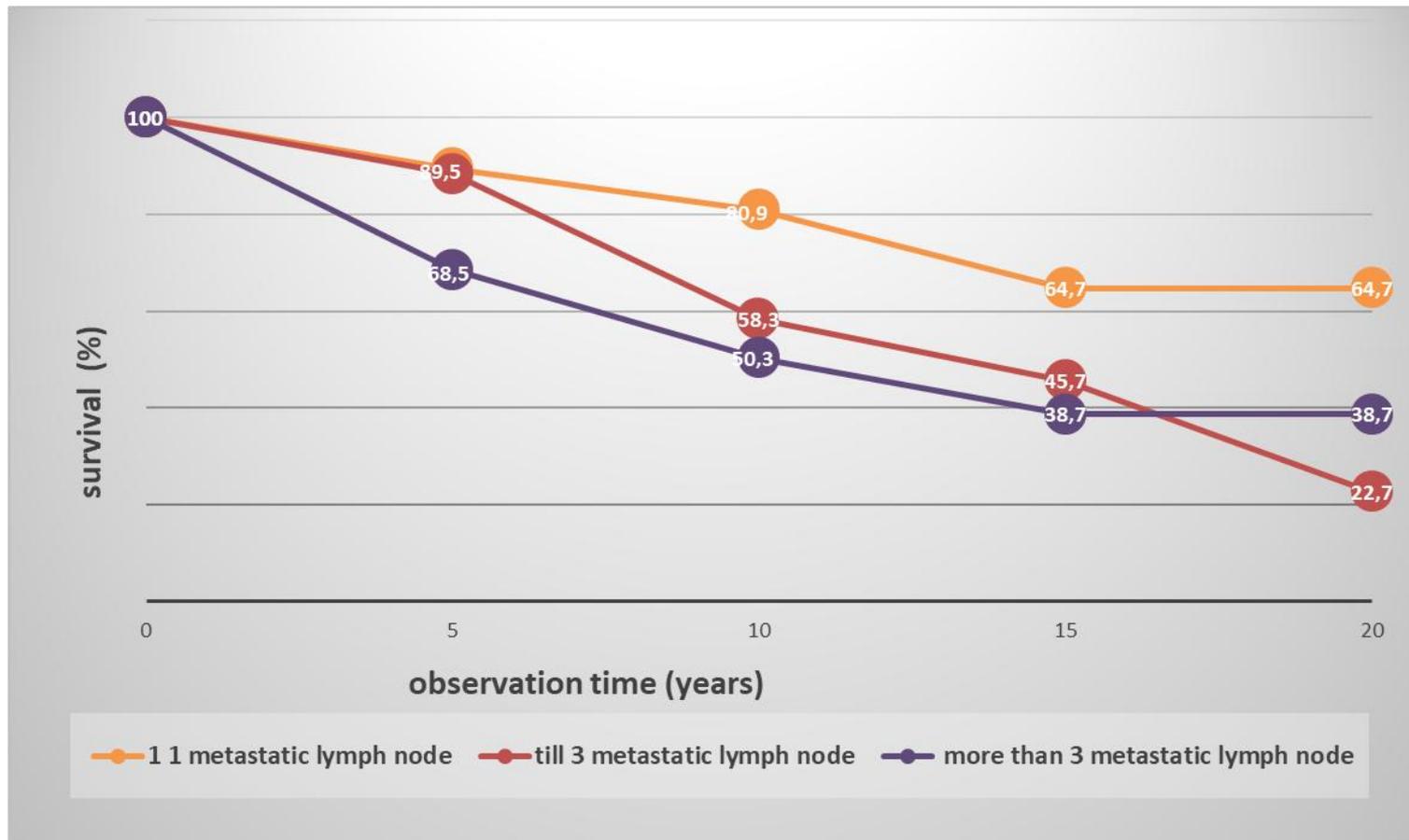
In patients with stages T1-2N1-3 – T1-2N0, a high survival rate is noted compared to others, and this is certainly due to the fact that metachronous cancer more often occurs after 5 years after treatment.

When assessing lesions of the lymphatic apparatus, it was found that with primary breast cancer, and with a metachronous tumor, the total 5-year survival in the presence of 1 metastatic lymph node is 89.5%, whereas in a lesion of more than 3 lymph nodes only 68.5% (figure 3).

However, the number of affected lymph nodes also affects the timing of the second breast tumor.

Results and discussion

Figure 3



Results and discussion

The study of the ploidy of metachronous breast cancer showed that 91.9% of patients are dominated by aneuploid tumors, and they are associated with the early stages of the process, are observed mainly in women younger than 50 years and in 35.2% of cases are combined with the loss of chromosomal material.

Diploids with a set of chromosomes occurred at the age of over 50 years and with locally advanced stages. Tetraploid tumors were detected in almost 3% of cases. In determining the degree of malignancy of the tumor, it was established that in metachronous cancer, the overwhelming percentage of tumors has a degree of malignancy II.

Conclusion

Thus, during our study, important prognostic signs of metachronous breast cancer were established:

- the time of occurrence of a metachronous tumor,
- the age of patients,
- ovarian-menstrual function,
- the level of steroid hormone receptors,
- the stage of the process,
- the number of metastases in regional lymph nodes.

According to the results of multivariate analyzes (weighted Shannon informativity weighting factors), the risk of developing metachronic breast cancer is made up of young women, with intact menstrual function, in the early stages, the tumor in which is aneuploid with a loss of chromosomal material.

Thank you for your kind attention!