

## Surgery is an Effective option for Patients with Newly Developed Advanced Breast Cancer

A A Bozhok<sup>1,2</sup>, E E Topuzov<sup>1,3</sup>, A D Zikiryakhodzhaev<sup>1,4</sup>, A S Sukhot'ko<sup>1,4</sup>, Khaylenko V A<sup>1,5</sup>, Shatova Yu S<sup>1,6</sup>, Klimov N A<sup>1,3</sup> and Paltuev R M<sup>1,7</sup>

<sup>1</sup>Russian Society of Oncomammologists, Russia

<sup>2</sup>Federal Medical and Biological Agency, L.G.SokolovClinical Hospital, Russia

<sup>3</sup>I.I. Mechnikov North-Western State Medical University, Russia

<sup>4</sup>P.A. Herzen Moscow Oncology Research, Russia

<sup>5</sup>N.N. Blokhin Russian Cancer Research Center, Ministry of Health of Russia, Russia

<sup>6</sup>Rostov Research Institute of Oncology, Ministry of Health of Russia, Russia

<sup>7</sup>N.N. Petrov Research Institute of Oncology, Ministry of Health of Russia, Russia

**Introduction:** Breast cancer (BC) remains one of the most challenging problems in clinical oncology because it still has the highest incidence of all malignant tumors in women worldwide. A significant number of breast cancer patients worldwide (8.3%) and Russia in particular (11.5%) are first diagnosed in the fourth phase.

symptoms and signs of breast cancer includes,

- A breast thickening or lump
- Change in shape, size and the appearance of a breast
- Skin changes over the breast
- Newly inverted nipple
- Peeling, scaling, crusting or peeling in the pigmented skin area surrounding the nipple (erula) or breast skin
- Redness or puncture of the skin on your breast, like orange skin

The doctors knows that the breast cancer occurs when some breast cells begin to grow abnormally. These cells divide faster than healthy cells do and continue to accumulate to form a mass . Cells may spread (metastasize) through your breast to your lymph nodes or other areas of your body.

Breast cancer begins with cells in milk-producing ducts. Breast cancer may also begin in the glandular tissue called lobules or in other cells or tissues in the breast.

Researchers have identified lifestyle, hormonal and environmental factors that could increase the risk of breast cancer. But it is unclear why people who do not have risk factors develop cancer, but other people with risk factors never do. Breast cancer is most likely caused by a complex interaction of your genetic makeup and your environment.

There are many publications proving the feasibility of surgical treatment for some patients with metastatic BC. Till now, there is no strong understanding of the importance of cytoreductive surgery in treating BC dissemination. The most frequently discussed issue is the eligibility of patients for this treatment, as it is unclear what plays a crucial role in the selection process: localization of systemic therapy, metastasis, susceptibility to tumor characteristics or a combination of these factors.

**Materials and Methods:** This study covers the treatment outcome analysis of 608 patients with newly diagnosed advanced breast cancer (new diagnosis) from 1990-2015 as reported by 5 Russian Federation health institutions. The research and control groups were recruited retrospectively. The study group included patients with a new diagnosis diagnosed with ABC who underwent primary tumor surgery received systemic anti-cancer therapy. Patients in the control group received systemic anti-cancer therapy only. The groups were made up by pairing, that is. Each patient in the study group was matched to a control patient with similar prognostic characteristics. As a result, groups similar to localization and number of tumor metastases and biological properties were created. The average follow-up period was 56 months. Data were

analyzed using univariate and multivariate correlation techniques.

**Results:** 321 patients were included in the study group (surgical and systemic therapy) and 287 patients were included in the control group (systemic anti-cancer therapy only).

The statistical analyzes showed statistically significant differences in favor of the study group. Most of the mortality associated with disease progression was observed during the first three years of follow-up. Differences in survival rates between groups were observed as early as the first year of follow-up, with the gap only increasing over time.

Median survival was 35 months in the study group and 23 months in the control group ( $p < 0.01$ ).

Initial tumor removal was found to be most effective in distant bone metastases. More or less significant differences between the groups were observed in local metastases in medium organs, soft tissues, and multiple organ lesions and systems.

The number of distant metastases was also found to be a significant prognostic factor. Removal of the primary tumor in patients with one or two metastases per single organ increased the median survival from 26 months to 39 months ( $p = 0.001$ ). However, no differences in survival rates between groups were observed for  $\geq 3$  lesions ( $p = 0.07$ ).

The subgroup analysis indicated that the response to preoperative systemic therapy tended to significantly affect the effectiveness of surgical treatment. Median survival in patients with systemic response was 43 months in the study group and 26 months in the control group ( $p = 0.0001$ ). For patients who did not respond to systemic therapy, the difference in survival rates between groups was not statistically reliable ( $p = 0.09$ ).

In terms of the biological characteristics of the tumor, it has been found that high expression of steroid hormone receptors is the most important factor contributing to the high efficiency of surgical treatment. Removal of the primary tumor in patients with high ER / PR expression increased the mean life expectancy from 34 months to 49 months ( $p = 0.005$ ).

Data on the completeness of the initial tumor resection are particularly interesting. The median survival of patients with clean resection margins was 39 months compared to 22 and 29 months in those with resection margins or unknown surgical margins, which is approximately 23 months in patients not analyzed ( $p = 0.0000$ ).

**Conclusions:** Surgical removal of the primary tumor in the recently diagnosed, advanced BC diagnosis results in a statistically significant increase in median survival between 23 and 35 months ( $p = 0.01$ ).

The most impressive effect of surgical treatment was observed in patients with bone metastasis, one or two metastatic lesions in one limb, positive response to systemic therapy, high ER / PR expression and in cases where clean resection could be reached.