Conflict of Interest:

Further analysis will be needed to show whether this finding has been cost-effective in the real-world setting despite increased initial costs. Further analysis will be needed to show whether this finding holds over a lifetime horizon for patients.

Conflict of Interest: No significant relationships.

Predictive and prognostic factors

PI06
The effects of prognostic factors on metastasis and survival of patients with breast cancer using a multi-state model

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Goals: Breast cancer is the most common type of cancer in women worldwide. The multi-state models help in more closely studying the factors affecting the survival of patients with this cancer. Therefore, in this study, we aimed to analyze breast cancer data using the multi-state model.

Methods: This was a registry-based retrospective cohort study conducted on 2030 Iranian patients with breast cancer in 2020. Data were obtained from the patients’ electronic medical records. Notably, the patients’ follow-up time varied from one month to 15 years. In this regard, the initial treatment, metastasis, and death are considered as the first, second, and absorbing states, respectively. The multi-state model was utilized for modeling and analyzing the data at a 95% significance level using the MSM package in R software.

Results: The mean age (±SD) of the patients included at diagnosis time was 55.3 (±12.07) years old. The first one-year and 5-years adjusted transition probabilities for transitions from treatment to metastasis were estimated as 0.85 (0.15–0.89) and 0.45 (0.21–0.61), and for metastasis to death transitions, they were estimated as 0.15 (0.1–0.21) and 0.55 (0.41–0.69), respectively. The EBRT method [HR: 7.39, (0.19–28.74)], stage greater than or equal to II [HR: 1.14, (0.66–20.88)], and tumor grade greater than or equal to II [HR: 6.48, (0.55–28.39)] had an increased hazard on the transitions from treatment to metastasis. Moreover, the average sojourn times were estimated as 0.27 and 74.85 months for the treatment and metastasis states, respectively.

Conclusion(s): The multi-state models by providing valuable information can help to explain the factors affecting the natural course of diseases for clinical usage compared to the other survival models.

Conflict of Interest: No significant relationships.

PI07
Breast cancer after in vitro fertilization (IVF): can ovary stimulation and follicular response affect prognostic factors?

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Goals: The follicular response is related with estradiol level. Study in breast cancer patients after IVF if ovarian response or number of IVF cycles affects the prognostic factors.

Methods: Patients with breast cancer who underwent IVF were studied the prognostic factors (Ki67, HER2, estrogen receptor (ER), progesterone receptor (PR), oncogene p53, histologic grade) in relation to the ovary response and number of IVF cycles.

Results: 73 patients with breast cancer after IVF were studied. They performed 135 cycles of IVF: 36 (49.3%) with 1 IVF and 37 (50.7%) with more than one IVF. Hyper response was present in 24 (32.9%) patients and there was no hyper response in any IVF in 49 (67.1%) patients. The prognostic factors were: Ki 67 >20 in 31 (91%) (15/47) Ki 67 ≤20 in 68 (80%) (32/47), HER2 + 31 (94%) (23/72) HER2 – 68 (95%) (49/72), p53 + 45 (95%) (23/51), p53 – 54% (28/51), HG II-III 56% (31/55), HG I 43% (24/55), RE + 87% (63/72), RE – 12% (9/72), RP + 76% (55/72), RP – 23% (17/72). None of prognostic factors varied with the ovary response (hyper response in at least one IVF cycle, normal response, normal or low response) (P = ns).

Conclusion(s): Breast cancer after IVF, the ovary response not affect Ki67, HER2, estrogen receptor, progesterone receptor, p53, and histologic grade. p53 positive is more frequent in patients with more than one IVF.

Conflict of Interest: No significant relationships.

P108
Predictive mathematical modelling of recurrence periods for the secondary distant metastases in patients with ER/PR/HER2/Ki-67 subtypes of breast cancer

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Goals: Previously, a mathematical model of primary tumor (PT) growth and secondary distant metastases (sdMTSs) growth in breast cancer (BC) (CoMPaS), considering the TNM classification, was presented (Tyuryumina E. et. al, 2018). Goal: To detect the recurrence periods for visible sdMTSs via CoMPaS in patients with different subtypes ER/PR/HER2/Ki-67 of breast cancer.

Methods: The model CoMPaS is based on an exponential growth model and complementing formulas, and the model corresponds to the TNM classification and subtypes ER/PR/HER2/Ki-67 classification. CoMPaS allows calculating the tumor volume doubling time (TVDT) of the PT and sdMTSs and the earliest recurrence period of sdMTSs. The CoMPaS model reflects:

1) subtypes of BC such as ER/PR/HER2/Ki-67, where Luminal A = HR (+)/HER2 (-), Luminal B = HR (+)/HER2 (+), Luminal B = HR (+)/HER2 (-), HR (-)/HER2 (+) and HR (-)/HER2 (-), depending on the TVDTsMTs;
2) the growth processes of the PT and sdMTSs in BC patients without or with lymph node metastases (MTSs) in accordance with the 8th edition AJCC prognostic staging system for breast cancer.

Results: Critical growth periods of BC are defined via CoMPaS:

(1) the non-visible growth period of the PT;
(2) the visible growth period of the PT (appearance of the sdMTSs in other parts of body);
(3) the non-visible growth period of the sdMTSs; and
(4) the visible growth period of the sdMTSs.
Conclusion(s): CoMPaS correctly describes the growth period of the PT, which corresponds to the TNM and ER/PR/HER2/Ki-67 subtypes classification, the growth period of the sdMTSs and the 1–15-year survival of BC patients, taking into account TNM and ER/PR/HER2/Ki-67 subtypes classification. CoMPaS correctly describes the growth of the PT in ER/PR/HER2/Ki-67 subtypes of BC patients and helps to calculate the different recurrence periods, depending on the TVDT_{MTS} when sdMTSs might appear.

Conflict of Interest: No significant relationships.

P109
Effectiveness of breast-conserving treatment for minimal residual tumors after neoadjuvant breast cancer therapy
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Goals: 1. To determine the frequency of detecting a minimal residual tumour of breast using physical methods (examination, palpation), radiation diagnostic methods: ultrasound, SPECT, mammography, vacuum aspiration biopsy or another type of biopsy and/or detection of metastases in regional lymph nodes (directed signal biopsy) in addition to the standard pathomorphological examination of the surgical specimen and regional (including sentinel) lymph nodes.
2. To study the long-term results of patients (local-regional recurrence, survival) with residual (including minimal disease) and with regression (pCR) after neoadjuvant systemic therapy, in comparison with patients with primary minimal breast cancer.
3. Develop an algorithm for treating patients with minimal residual disease and complete clinical response to neoadjuvant systemic therapy for breast cancer.

Methods: Retrospective analysis of data on neoadjuvant systemic treatment of patients with primary resectable and locally advanced forms of breast cancer, carried out at the Petrov National Medical Research Center of Oncology of the Ministry of Health of Russian Federation in the period from 2011 to 2019. The rates of disease (relapse)-free and overall survival of patients with residual (minimal) disease, after neoadjuvant systemic therapy (150 patients) and with primary minimal breast cancer (150 patients), based on data obtained from the database of the cancer registry of breast tumors (without randomization, only taking into account the stratification of other characteristics: breast cancer phenotype, grade of malignancy, proliferative activity Ki67).

Results: Survival rates between the two groups are comparable, however, in the group of patients who have achieved pCR and regression of lesion to the size of minimal carcinoma, survival rates depend on the molecular subtype and the initial stage of the disease, as well as the quality of life. The pCR rate frequency correlates with the biological subtype of the tumor: pCR is most often recorded in HER2 overexpressing, triple negative and luminal B breast cancer subtypes.

Conclusion(s): The development of an effective breast-conserving treatment of minimal residual tumors after neoadjuvant therapy for breast cancer will make it possible to abandon crippling, massive surgical interventions (radical mastectomy with ALD), ensuring rapid rehabilitation and a high quality of life for patients.

Conflict of Interest: No significant relationships.