VIA MEDICA

Biuletyn Polskiego
Towarzystwa Onkologicznego
NOWOTWORY
2019, tom 4, nr 5–6, 235–236

ISSN 2543–5248
www.nowotwory.edu.pl

Should perioperative chemotherapy in triple negative breast cancer routinely comprise platinum salts? A vote for no

Joanna Kufel-Grabowska

Zdjęcie: archiwum

Department and Chair of Electroradiology, Chemotherapy Department, The Maria Skłodowska–Curie Greater Poland Cancer Centre, Poznan University of Medical Sciences, Poznan

Breast cancer is the most common female neoplasm in Poland and worldwide, its mortality rate ranking second only to lung cancer. There are several biological subtypes, differing, among other parameters, as to prognosis and perioperative treatment recommendations. Triple negative breast cancer is one of the worst prognoses and systemic preoperative treatment is recommended as early as of II TNM stage. Pathological complete response (pCR) may result in an improved prognosis. Most patients respond well to standard chemotherapy and there is no need to include platinum derivatives in perioperative therapies. One should remember that platinum salts use not only increases the percentage of pCRs, but also results in an increased therapeutic toxicity; it does not, however, have an impact on disease free survival (DFS) an overall survival (OS).

Biuletyn PTO NOWOTWORY 2019; 4, 5–6: 235–236

Key words: breast cancer, triple negative breast cancer, perioperative therapy, platinum salts

Breast cancer is the most often diagnosed female cancer, whereas lung cancer is characterized by the highest mortality rate. Using such biological markers as: estrogen and progesterone receptor expression, HER2 receptor overexpression or amplification of its gene as well as Ki-67 proliferation marker level, allows for dividing breast cancer into several subtypes: luminal A, luminal B, HER2 positive without hormonal receptor expression, triple negative [1].

Triple negative breast cancer constitutes only 10–15% of all breast cancers, but its prognosis is very poor. It is often diagnosed in young women, 10–20% of whom are *BRCA* 1/2 mutation carriers. It metastases more frequently to the lungs, liver and brain. Today, the only perioperative therapy available is cytostatic use. Neoadjuvant therapy is preferred even in patients with small tumors or with metastases in the axillary lymph nodes. Neoadjuvant chemotherapy has certain benefits, such as monitoring the response to treatment and the time for genetic counselling.

In response to the question in the title, there are no objective foundations for platinum salts to be routinely used in perioperative therapy of triple negative breast cancer patients.

The current standard treatment are dose-dense schemes: 4 courses of doxorubicin with cyclophosphamide every

How to cite:

Kufel-Grabowska J. *Should perioperative chemotherapy in triple negative breast cancer routinely comprise platinum salts? A vote for no.* *NOWOTWORY J Oncol* 2019; 69: 182–183.

14 days (ddAC) in combination with granulocyte growth colony stimulating factor and paclitaxel every 7 days. Dose-dense scheme use improves the prognosis, i.e. disease-free survival and overall survival in comparison to standard anthracycline--based chemotherapy every 21 days [2]. Intensive preoperative treatment does sometimes end in pCR, that is in lack of cancer cells in the breast and in lymph nodes after surgery. Pathological complete response is sometimes a primary end point in clinical trials and is considered a surrogate of good prognosis, therefore tests are being conducted to increase its percentage. Alas, its attainment is not always connected with an increased survival rate. In a 2018 meta-analysis concerning platinum salts use in 9 randomized clinical trials, postchemotherapy and postsurgery pCR rise resulted in an increased number of complications, mostly hematological; it did not, however, lead to an prolonged disease-free survival or overall survival time [3].

Platinum salts cause DNA single-strand breaks. Accumulation of such breaks in patients with homological recombination deficiency leads to DNA double-strand break and cancer cell apoptosis. Therefore, taking into consideration platinum salts use in patients with triple negative breast cancer, one should, first of all, think about *BRCA* 1/2 pathogenic mutation carriers. Most of them are diagnosed with breast cancer at a young age and do not give up plans to have children, that is why one must bear in mind the fact that platinum salts destroy oocytes and ovarian stromal cells damaging the ovarian blood supply and impairing the hippocampus-pituitary gland axis function [4]. In pregnant patients, carboplatin breaks the placental barrier and may cause hematological complications in the newborn, while cisplatin may result in ototoxicity and intrauterine growth disturbances [5, 6].

In conclusion, one often aims at pCR in triple negative breast cancer patients. One should remember that most patients respond very well to standard chemotherapy and there is no need to escalate the treatment by applying platinum salts, because it results in adverse events and no improvement in the prognosis.

In patients without pCR, capecitabine adjuvant therapy is an option during 6 months after surgery; this method removes the recurrence in time and increases the overall survival time [7].

A hope for the future still remains, as regards treating triple negative breast cancer patients using molecular diagnostics [8]. Platinum salts and PARPi (*poly-ADP-ribose polymerase inhibitors*) are an important therapeutic option in women with homological recombination deficiency. At present clinical trials on PARPi use in preoperative treatment are under way and the preliminary results are very promising.

Conflict of interest: none declared

Joanna Kufel-Grabowska
Poznan University of Medical Sciences
The Maria Skłodowska–Curie Greater Poland Cancer Centre
Chemotherapy Department
Department and Chair of Electroradiology
ul. Garbary 15
61- 866 Poznań, Poland
e-mail: joannakufel@googlemail.com

Received: 30 Apr 2019
Accepted: 8 Dec 2019

Prezentujemy jeden z głosów w debacie. Drugi uczestnik debaty nie przedstawił swojego artykułu.

References

1. Hubalek M. et al. Biological Subtypes of Triple-Negative Breast Cancer. *Breast Care*. 2017; 12 (1): 8–14.
2. Goldvaser H. et al. Influence of control group therapy on the benefit from dose-dense chemotherapy in early breast cancer: a systemic review and meta-analysis. *Breast Cancer Res. Treat.* 2018; 169 (3): 413–425.
3. Poggio F. et al. Platinum-based neoadjuvant chemotherapy in triple--negative breast cancer: a systematic review and meta-analysis. *Ann Oncol*. 2018; 29 (7): 1497–1508.
4. Bedoschi G. et al. Chemotherapy-induced damage to ovary: mechanisms and clinical impact. *Future Oncol.* 2016; 12: 2333–2344.
5. Vandebroucke T. et al. Effects of cancer treatment during pregnancy on fetal and child development. *The Lancet Child & Adolescent Health*. 2017, 302–310.
6. Cardonick, E. et al. Use of chemotherapy during human pregnancy. *Lancet Oncol.* 2004; 5: 283–291.
7. Masuda N. et al. Adjuvant capecitabine for breast cancer after preoperative chemotherapy. *N Engl J Med*. 2017; 376: 2147–2159.
8. Lehmann BD et al. Refinement of Triple-Negative Breast Cancer Molecular Subtypes: Implications for Neoadjuvant Chemotherapy Selection. *PLoS ONE*. 2016; 11 (6): 0157368.