LUBLIN SCIENCE AND TECHNOLOGY PARK S.A.

International research and practice conference

INNOVATIVE TECHNOLOGY IN MEDICINE: EXPERIENCE OF POLAND AND UKRAINE

April 28–29, 2017

Lublin, Republic of Poland

2017

THEORETICAL MEDICINE: THE MAIN WAYS OF DEVELOPMENT

DENTAL SUPPORTIVE CARE IN BREAST CANCER PATIENTS DURING ADJUVANT CHEMOTHERAPY

Sukhina I. S.
Candidate of Medical Sciences,
Assistant of Dentistry Department

Sokolova I. I.
Candidate of Medical Sciences, Professor,
Assistant of Dentistry Department
Kharkiv National Medical University
Kharkiv, Ukraine

Cancer morbidity and mortality is constantly increasing throughout the world, despite of the development of new methods of diagnosis and treatment [1, 3, 6]. Breast cancer takes one of the leading positions among all neoplasms in women. One of the main treatment method for cancer patients is chemotherapy (CTx), which can be prescribed along with surgery and radiotherapy, which is able to inhibit the proliferation of tumor cells (cytostatic effect) or lead to their complete destruction [2, 3]. During the systemic therapy, except therapeutic effect, we can almost always obtain adverse reactions, appeared in different sires of organism, including oral cavity (oral mucositis – OM), the incidence-rate of which in breast cancer patients ranges from 30 to 90% [5, 12]. It is still unclear why, under equal conditions, the complications will be developed only in some patients [9].

Some authors have proposed prevention of serious side-effects, which requires a subsequent reduction of the chemotherapy dose and a change of regimen. Unfortunately, dentists and oncologists have paid insufficient attention to prescription of adequate and differentiated methods of prevention and treatment of this condition, which requires to develop a specific method of dental supportive care at all steps of antitumor treatment in breast cancer patients.

The **aim** of this work is to develop the complex of dental supportive care and evaluate its effectiveness in breast cancer patients during adjuvant chemotherapy.

Materials and methods. Our own clinical observations of 98 breast cancer (BC) patients, who received a comprehensive treatment in «Grigoriev Institute for Medical Radiology, National Academy of Medical Science of Ukraine» in Kharkiv. All the patients were diagnosed with breast cancer, and received a combined treatment (modified radical mastectomy + radiotherapy), and 6 cycles of adjuvant chemotherapy [4].

All the patients were divided into two groups. Patients of Group 1 should only brush their teeth once a day with any kind of toothpaste, or didn't use any hygiene

products at all. Patients of Group 2 were proposed to follow a complex of therapeutic and preventive measurements, developed by us (an application for an invention is filed), during the chemotherapy.

Group 1 (the control group) consisted of 26 breast cancer patients stage $T_1N_0M_0$ – $T_2N_1M_0$. The age of the patients varied form 35 to 72 years old. The mean age was (54.1 ± 9.2) years, median – 55.5 years.

Group 2 (the study group) included 72 breast cancer patients stage $T_1N_0M_0$ – $T_2N_1M_0$. The age of the patients ranged from 28 to 73 years old. The mean age was (56.0 ± 1.1) years old, median – 58.0 years.

Patients' examination was performed before the onset and at the end of each cycle of CTx by the common pattern: a survey, inspection, percussion, palpation and thermodiagnostics. The oral mucosa condition was assessed relying on the inspection, noting the degree of its hydration, presence of congestion, fur, and other elements of lesions.

Manifestation of side effects of cytostatic treatment in oral cavity was also assessed based on the patients' survey data. There was developed a questionnaire, in which all patients noted their complaints during the chemotherapy.

The obtained data were put in a specifically designed unified card and consequently used for statistical analysis. Statistical analysis was performed by software package STATISTICA.

Results. The application of the developed complex of supportive care in BC patients during adjuvant CTx reduced the incidence of side-effects of cytostatic therapy in oral cavity in comparison to the control group.

The frequency of oral toxicity during the I cycle in the study group (Group 2) has decreased to (56.9 ± 5.9) versus (84.6 ± 7.2)% in the control group (Group 1). If in Group 1 the maximum manifestation of toxicity was observed during the III and V cycles of CTx – (92.3 ± 5.3) and (96.2 ± 3.8)%, in Group 2 it was observed only during the I cycle of CTx. The minimal manifestation of toxicity was marked during the VI cycle of CTx: (84.6 ± 7.2) and (18.1 ± 4.6)%, in Groups 1 and 2 respectively.

The incidence of CTx-associated mucositis in the group of patients who didn't receive the supportive care, correlates with the literature data, where the incidence-rate is 70-100%, especially in patients, treated with 5-fluorouracil [2, 3, 5].

The application of preventive therapy has led to a significant decrease of the frequency of complaints about the fur, presence of oral ulcers, cracks in the mouth corners, dry lips, inflamed and bleeding gums, and presence of foamy saliva, the changes in taste sensation and decreased appetite. The frequency of complaints detected in the control group, is slightly lower in comparison to the data, presented by several authors, who note that 100 % of patients complain on the dryness in mouth and thirst during the course of CTx.

Comparing the dynamics of complaints throughout the course of CTx in patients in the study group, it should be emphasized that the I cycle was marked by the maximum percentage of complaints of dry lips – 12.2 ± 5.2%, swelling of the oral mucosa – 9.8 ± 4.7%, decreased appetite – 9.0 ± 7.7%. Maximum percentage of complaints during the II cycle of CTx was formed by such figures: thirst – 51.4 ± 8.3%, rash on the lips – 5.4 ± 3.8%, cracks in the corners of the mouth – 5.4 ± 3.8%, fur – 5.4 ± 3.8%, changes in taste sensation – 43.2 ± 8.3%.

The III cycle of CTx was accompanied by the greatest manifestation of the inflammation of oral mucosa – 6.5 ± 4.5%, the presence of oral ulcers – 9.7 ± 5.4%, the swelling of the tongue – 9.7 ± 5.4%, and the inflamed and bleeding gums – 9.7 ± 5.4%.

It should be mentioned that such complaints as pain of the cheeks mucous membrane, burning tongue, gingival papillae were absent during all 6 cycles of chemotherapy; complaints of foamy saliva were absent, starting from the II cycle of CTx, of oral ulcers and cracks in the mouth corners– from the IV cycle of CTx. There were practically no changes in the frequency of complaints of burning tongue tip and the inflammation of the oral mucosa. Complaints, described above, are a manifestation of cheilitis, mucositis and salivary gland dysfunction.

As we can see in the control group, cheilitis is the most common pathology with a peak manifestation at the III cycle of CTx – 69.2 ± 9.2%, which is then gradually reduced to 34.6 ± 9.5% on the VI cycle. The frequency of salivary gland dysfunction is maximal during the II cycle of CTx – 61.5 ± 9.7%, with a following reduction in the frequency of its manifestations to 26.9 ± 8.9% by the VI cycle. The frequency of mucositis increases by the III cycle to 73.1 ± 8.9%, subsequently declining to 34.6 ± 9.5% on the VI cycle of chemotherapy.

The application of complex of therapeutic and preventive measures in these patients has significantly reduced the incidence of cheilitis to 12.5 ± 3.9% on the I cycle in comparison to the control group. During the VI cycle of CTx this figure was 1.4 ± 1.4%. The frequency of mucositis was also significantly lower, compared to the control group, with a peak at the II cycle – 27.8 ± 5.3% and gradual decrease by the VI cycle of chemotherapy – 4.2 ± 2.4%. Salivary gland dysfunction is the second most common disease with a peak at the I-II cycles of CTx, reaching 33.3 ± 5.6%, and then declining to 11.1 ± 3.6% at the VI cycle. The significance of differences is noted during the I-V cycles of CTx.

Conclusion. The oral cavity toxicity is observed in 84.6-96.2% of patients, and increases with the number of cycles of chemotherapy. The main manifestations of the side-effects of cytostatic therapy are cheilitis and mucositis.

Application of complex of therapeutic and preventive measurements, developed by us, as a support therapy in this patients, has contributed to a significant reduction

of dental toxicity, compared to the control group in 1.5 times on the I cycle (56.9%), and in 4.5 times on the VI cycle of CTx (18,1%). This demonstrates the effectiveness of the applied complex of therapeutic and preventive measurements in breast cancer patients during adjuvant chemotherapy.

The above-mentioned data dictates the necessity of monitoring of the oral cavity status in breast cancer patients during the treatment.

References:

1. Баррет Д. Можно ли улучшить результаты лечения онкологических больных без увеличения затрат // Материалы VI ежегод. Рос. Онколог. конф.– М.: Изд. тр. РОНЦ им. Н. Н. Блохина РАМН. – 2002. – С. 16-18.

2. Казюлин А.Н., Кучерявый Ю.А., Гайдамак Е.В., Козлов С.В. и др. Факторы риска и частота токсического поражения желудочно-кишечного тракта при проведении противоопухолевой химиотерапии рака молочной железы. [Электронный ресурс]. – 2008. – URL: http://www.mif-ua.com/archive/article/3980/ (дата обращения: 17.08.2013).

3. Миямото Кертис Т. Возможно ли снизить уровень заболеваемости и тяжести орального мукозита // Touch Briefings. – 2007. Philadelphia, USA. – С. 18–21.

4. Руководство по химиотерапии опухолевых заболеваний / под ред. Н. И. Переводчиковой. – 2-е изд., доп. – М.: Практическая медицина, 2013. – С. 432-433.

5. Сухина И.С., Соколова И.И. Особенности состояния слизистой оболочки ротовой полости и губ у пациенток с раком молочной железы на этапах адъювантной полихимиотерапии. // Вісник проблем біології та медицини. –2012 – Вип. 2, том 2 (93). – С. 251–255.

6. Федоренко З.П. Бюлетень Національного канцер-реєстру України // – Київ, 2012 – № 12. – 61 с.