

# Skin care in treatment with ionizing rays

## Skincare invalid with ionizing rays

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### STRESZCZENIE

**Wstęp:** Możliwość wystąpienia objawów niepożądanych terapii promieniami jonizującymi jest uwzględniona w planie postępowania leczniczo-pielęgnacyjnego. Głównym, choć nie jedynym objawem ubocznym leczenia, a zarazem problemem pielęgnacyjnym, jest wczesny skórny odczyn popromienny. **Cel pracy:** Przedstawienie wyników analizy z monitorowania wczesnego skórny odczyn popromienny wśród pacjentów hospitalizowanych w okresie od 1 lipca do 31 grudnia 2014 roku na Oddziale Radioterapii II Centrum Onkologii w Bydgoszczy, leczonych radykalnie promieniami jonizującymi i pielęgnowanych zgodnie z wytycznymi standardu praktyki pielęgniarskiej, u których stosowano preparat RadioProtect. **Materiał i metody:** Monitoringiem objęto 152 pacjentów leczonych radykalnie promieniami jonizującymi. **Wyniki:** Wczesny odczyn popromienny skóry 0 stopnia zarejestrowano u 81 osób, 1 stopnia u 60, a 2 stopnia u 11 osób. Odczyn 3 i 4 stopnia nie wystąpił u żadnego pacjenta. **Wnioski:** Stosowanie wytycznych standardu praktyki pielęgniarskiej do pielęgnacji skóry u pacjentów leczonych promieniami jonizującymi, z wykorzystaniem kremu RadioProtect wpłynął na uzyskane wyniki.

**Słowa kluczowe:** opieka pielęgniarska, edukacja pacjentów, promieniowanie jonizujące, odczyn popromienny, RadioProtect

### ABSTRACT

**Introduction:** The possibility of adverse effects of treatment with ionizing radiation is present in the plan of the healing and nursing process. The main, but not the only side effect of treatment, and at the same time the skin nursing problem, is early treatment toxicity. **Aim:** Presenting analysis results from monitoring the early skin radiation reaction amongst patients hospitalized in the period from 1 July to 31 December 2014 to in the Branch of the Radiotherapy of the II Centre of Oncology in Bydgoszcz, the were treated radically with ionizing rays and looked after according to guidelines of the standard of the nursing internship, and also were using RadioProtect preparation. **Results:** It was found the percentage for different degrees of early cutaneous radiation reaction. Monitoring embraced the group of 152 patients treated radically with ionizing radiation. It was registered early skin toxicity 0° in the group of 81 people, 1° in the group of 60 patients and 2° in the group of 11 patients. Among patients hospitalized in the Department and encompassed with the monitoring, 4° 3° early cutaneous radiation reaction did not occurred. **Conclusion:** Applying guidelines of the standard of the nursing internship with using RadioProtect cream of the skincare on patients treated with ionizing rays influenced the results.

**Key words:** nursing care, patient education, ionizing radiation, treatment toxicity, RadioProtect

### INTRODUCTION

Specific treatment with ionizing radiation demands that the patient is fully mobile, in order to understand the planned healing program, comply with recommendations and behave properly after the therapy is completed. Despite the undisputed benefits of treatment with ionizing rays, it should be kept in mind that this process takes place in a living organism and, therefore, may cause undesirable effects [1].

Side effects of radiation therapy can be divided into general and local. Local changes – post-radiation reactions, are strictly related to the area subjected to the treatment, because within its range, apart from the cancerous tissue, there are

always healthy tissues as well, whose tolerance to radiation depends on their volume and dose fractionation. Predispositions for the occurrence of symptoms of side effects are always an individual matter and are not an indicator of the efficiency of the treatment. Occurrence of post-radiation reactions is also influenced by the general condition of the patient, nutrition, concomitant diseases, i.a. diabetes, psoriasis, fungal diseases, bacterial and viral infections and antibiotic therapy [2].

An important element of the procedure during radiotherapy is a prophylaxis of early post-radiation reactions of skin through the planned and systematic skin care, using appropriate preparation.

It is well known to the nurses, whose responsibilities include educating the

patient and/or his caregiver in such a way, so the healing and nursing process proceeds according to the plan.

The possibility of occurrence of side effects in treatment with ionizing radiation is included in the plan of medical and nursing care. In our centre, we also meet such symptoms, but by all means we try to minimize the risk of their occurrence and reduce their severity.

The main, but not only side effect of treatment with ionizing radiation is early skin post-radiation reaction.

Careful, constant and reliable patient observation by nursing staff, establishing positive contact with the patient, based on mutual trust, affect the proper course of nurturing and effectively prepare him to deal with problematic situations after the treatment and hospitalization. The nursing staff of the Branch of the Radiotherapy of the II Centre of Oncology in Bydgoszcz has high qualifications and broad competence. All employees have completed further training course in the field of nursing in radiotherapy, and 69% of nurses are specialized in the field of oncology nursing. The team perform their tasks in education and care based on standards for nursing practice concerning education of a patient qualified for treatment with ionizing rays and nurturing early skin post-radiation reaction. The aim of the first standard is the use of guidelines that will affect the proper preparation of the patient to ionizing radiation treatment, full cooperation with the medical staff and nursing process during the treatment. It allows to determine the percentage of patients who, through educational activities undertaken by nursing staff, will be familiar with the basic concepts associated with the radiotherapy, the rules concerning the treatment of ionizing rays, but most importantly - will follow the recommendations for the monitoring and nurturing of irradiated areas. Applying the guidelines of the second standard aims to minimize the risk of early skin post-radiation reaction of 3 and 4 degree in patients treated with ionizing radiation.

## PURPOSE OF THE PAPER

The purpose of this paper is to present analysis results of monitoring the early skin post-radiation reaction amongst patients hospitalized between 1 July a 31 December 2014 in the Branch of the Radiotherapy of the II Centre of Oncology in Bydgoszcz, who were treated radically with ionizing rays, were looked after according to guidelines of the standard of the nursing practice, and used RadioProtect cream.

## MATERIALS AND METHOD

All the patients qualified for radical radiotherapy were subjected to the healing with ionizing rays based on the individual treatment and nursing care plans, developed due to the self-care deficits.

During the treatment, starting from the first fraction, skin was subjected to hygiene procedures, consisting of washing (shower), without the use of cleaning agents, gentle drying and the application of RadioProtect cream onto the skin in the treated areas, 4-5 applications of a very thin layer, absorbed in no more than 10 minutes. Patients who showed self-care deficit were cared for by the nursing staff. The others, after a practical training in skin care, performed caring activities on their own. Early skin post-radiation reaction was monitored based on a standardized tool in all patients treated with radical ionizing rays. The tool was developed based on previous experience and is an element of the standard of nursing care. In addition to basic personal information, the form included:

- Treatment starting date,
- Possible interruption of treatment,
- Body area subjected to the treatment, divided into: head and neck, chest, abdominal cavity, limbs,
- BMI (body mass index) at the moment of the treatment beginning (qualification to one of following groups: underweight, normal, overweight, obesity),
- Whether the patient is smoking,
- Whether the patient has diabetes.

The nursing staff took care of patients in an individualized manner, using the model of patient-oriented care.

According to the definition adopted by the oncology unit, early skin post-radiation reaction (local reaction) is a result of subjecting the skin to the ionizing rays.

It occurs during the treatment or just after its end (up to 6 months from the beginning of the treatment). The following scale has been adopted to evaluate the degree of the early skin post-radiation reaction:

- Degree 0 – normal skin,
- Degree 1 – pale or slight erythema, scaling dry skin, reduced perspiration,
- Degree 2 – pale or slight erythema, „dotted” wet skin scaling, moderate swelling,
- Degree 3 – overall skin scaling with moist draining, distinct swelling,
- Degree 4 – ulceration, bleeding, necrosis.

The nurse daily monitored the condition of the patient's skin covered with treatment for early skin post-radiation reaction with accordance to the adopted scale. In line with the determined degree of reaction, she took nursing actions based on the guidelines included in the nursing practice standard. It must be emphasised, that the personnel chooses the skin care preparations according to the conducted procedures described in the standard. Each of the taken actions was systematically recorded in the mandatory documentation - an individual nursing care sheet and the form for monitoring early skin post-radiation reaction.

## RESULTS

The monitoring included 152 individuals. Analysis results of the gathered data have been shown in table 1.

Table 1. 1 Percentage of early skin post-radiation reaction

Degree of early skin post-radiation reaction	N*	%**
0°	81	53.3
1°	60	39.5
2°	11	7.2
3°	0	0
4°	0	0
N* number of patients; ** percentage		

In 81 (53.3%) patients treated with ionizing rays, using RadioProtect cream, no early skin post-radiation reaction occurred. In 60 (39.5%), 1 degree reaction was found and for 11 patients (7.2%) it was 2 degree reaction. It is also satisfying that no 3 or 4 degree reactions were diagnosed.

Table 2 shows the analysis results, including body area that was subjected to the treatment with ionizing rays.

Based on the presented data, we can say that the body area covered by the treatment is an important factor in the occurrence of early skin post-radiation reaction. The most vulnerable patients are those subjected to ionizing rays treatment in the areas of head and neck (72%), abdominal cavity (42%) and chest (30.4%).

BMI indicator was evaluated at the day of the beginning of the treatment. Data has been shown in table 3. Amongst the monitored patients, it was observed that 104 (68.4%) of them had improper BMI indicator. 16 (10.5%) were underweight, 50 (32.9%) patients were overweight and 38 (25%) suffered from obesity.

## CONCLUSIONS

Very good treatment effects were greatly satisfying for the nursing staff, but most of all, for the patients, hospitalised at the branch. Effects were strongly influenced by the widely understood educational process, both in the case of patients and the personnel. It suggests the extremely important role of education and nursing activities realised by the nurses in the process of care of patients treated with ionizing rays.

The nursing staff insistence on educating the patients and pointing on the importance of skin care from the very first day of the treatment, in connection with the use of modern skin care procedures with RadioProtect cream, summed up to the very satisfying results. A deeper analysis should be performed in order to distinct two research groups: patients subjected to the treatment with ionizing rays and patients undergoing radiochemotherapy.

Table 2. Degrees of the early skin post-radiation reaction with regard to body area

Treated body area	Number of patients with early skin post-radiation reaction					Number of patients with early skin post-radiation reaction 1-4 degree N*/%**
	0°	1°	2°	3°	4°	
Head and neck	11	23	6	0	0	29/72
Chest	40	19	2	0	0	21/30.4
Abdominal cavity	29	18	3	0	0	21/42
Limb	1	0	0	0	0	0/0

N\* number of patients  
\*\* percentage

Table 3. BMI indicator with regard to the treated body area

Treated body area	N*/%**	BMI			
		underweight N*	normal N*	overweight N*	obesity N*
Head and neck	40/26.3	3	14	16	7
Chest	61/40.1	13	17	13	18
Abdominal cavity	50/32.9	0	17	20	13
Limb	1/0.7	0	0	1	0
<b>TOTAL</b>	<b>152/100</b>	<b>16</b>	<b>48</b>	<b>50</b>	<b>38</b>

N\* number of patients  
\*\* percentage

#### Reference:

1. Cichońska B., Dahms S., Króliczewska D.: Nursing care in radiotherapy. W: Koper A. (edit.): Oncological nursing. Medical Publishing House PZWL, Warsaw 2011: 263-293.
2. Fijuth J.: Radiotherapy. W: Jezierski. A. (edit.): Oncology. Medical Publishing House PZWL, Warsaw 2005: 72-73.

This paper was developed with the assistance of Aurea Pharma company.