

Application of Radioprotect cream in patients with diabetes mellitus who have been subjected to radiotherapy

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ABSTRACT

Background: Care for affected skin and monitoring for early radiation-induced skin re-actions constitute main challenges in the case of individuals with diabetes mellitus who have been subjected to radiotherapy due to concomitant cancer.

Objective: To determine the incidence of early EORTC/RTOG grade 0-4 radiation-induced reactions in patients with diabetes mellitus who have been subjected to radiotherapy and treated with a soothing cream (Radioprotect).

Material and method: The study included 19 patients with diabetes mellitus and concomitant cancer, subjected to radical radiotherapy

at the 2nd Department of Radiotherapy in the second half of 2014.

Results: None of the patients who have been hospitalized at the department, monitored and treated with Radioprotect developed an early grade 2,3 or 4 skin reaction.

Conclusion: The soothing cream (Radioprotect) exerts a beneficial effect on the skin of patients with diabetes mellitus who have been subjected to radiotherapy due to concomitant cancer.

Key words: nursing care, ionizing radiation, radiation-induced reaction, diabetes mellitus, Radioprotect

INTRODUCTION

Available epidemiological studies indicate that diabetes, especially type II, constitutes a risk factor for incidence and mortality from cancer. Among pathomechanisms obesity, insulin-resistance, hyperinsulinemia, hyperglycemia, a tendency to infections are included. All of the above mentioned factors are also significant in the process of treating cancer. The main problem regarding care in people with diabetes treated with ionizing radiation due to cancer involves caring for treated skin and monitoring early grade skin reactions. Skin problems occur more frequently in people with a changeable unstable level of glucose in their blood. The reason for the hypersensi-

tivity of skin in people with diabetes include vascular changes which cause excessive dryness, decreased sweating, and desquamation. Skin shows a tendency to maceration, irritation and formation of exudates. It is sensitive to wounds, cuts and abrasions, thermal stimuli that is high and low temperature, sunlight (UV), chemical substances and infections.

One of the side effects of treating cancer with ionizing radiation is an early grade skin reaction. The scale of intensity of early grade skin reactions after radiotherapy according to the European Organization for Research and Treatment of Cancer (EORTC) and the Radiation Therapy Oncology Group (RTOG) includes five grades:

- grade 0 – skin without any changes;
- grade 1 – pale or slight erythema, desquamation when dry, decreased skin sweating;
- grade 2 – pale or slight erythema, dot desquamation when wet, moderate swelling;
- grade 3 – confluent desquamation when wet with exudates, visible swelling;
- grade 4 – ulceration, haemorrhage, necrosis.

Nursing personnel taking care of patients with diabetes during treatment using ionizing radiation should be able to distinguish skin changes. Considering the skin features of patients with diabetes (tenderness, sensitivity, reduced sweating), skin should be carefully observed to recognize changes indicating

early grade skin reactions. Despite skin care in accordance with standard recommendations, temporary intensification of existing skin changes or early grade skin reactions may occur. Skin care is also more difficult in case of obese people where two neighbouring surfaces are in contact.

In this period it is extremely important to control the level of glucose in the blood and ensure appropriate nutrition, as when applying the therapy using ionizing radiation and as a result of the necessity to introduce supporting treatment metabolic disorders occur. In order to achieve the best results of care it is necessary to aim at complete cooperation with the patient by implementing planned activities in the field of education and establishing the patient as a partner in the care process.

OBJECTIVE

Establishing frequency of the occurrence of early grade 0-4 skin reactions according to EORTC/RTOG in patients with diabetes treated with ionizing radiation and nursed with the soothing cream Radioprotect.

MATERIAL AND METHOD

Nineteen patients with diabetes and cancer were included in the monitoring. They were qualified for radical radiotherapy and they underwent ionizing radiation based on an individual treatment plan and individual nursing care plan developed on the basis of the deficit regarding self-care. Skin changes within the area of the planned treatment prior to its commencement were not observed in any of the patients. Due to the co-existence of diabetes the level of nutrition was also taken into account.

In the study group it was indicated that only two people have an appropriate BMI,

which may make it difficult to nurse the skin within the radiated area. During the therapy, starting from the first fraction, the treated skin was washed (shower) with no cleaning agents and delicately dried. Simultaneously on the day of commencing treatment using ionizing radiation the cream Radioprotect was applied 4-5 times (the applied layer was very thin and it was absorbed within 10 minutes). Patients with recognized deficits in the field of self-care were nursed by nursing personnel. Other patients – after practical training in the field of skin care – took care of themselves without assistance. Early grade skin reactions were monitored based on a standardized tool – an early grade skin reaction monitoring card which was developed on the basis of previous experiences and constitutes a part of the nursing care standard.

Each day a nurse monitored the state of the treated skin regarding early grade skin reactions.

RESULTS

On the basis of the gathered data it was found that in sixteen patients with diabetes subjected to ionizing radiation and nursed using the cream Radioprotect (84.2%) no early grade skin reaction was observed, while in three patients (15.8%) an early grade 1 skin reaction was observed. In none of the patient's early grade 2, 3 and 4 skin reactions occurred. The analysis of the results taking into account the body part subjected to ionizing radiation is presented in Table 1. Based on the presented data we can state that the treated body part impacts the occurrence of early grade skin reaction. It should be noted that in 50% of patients treated near the head and neck an early grade 1 skin reaction occurred, while in 100% of patients treated within the chest there was no early grade 1-4 skin reaction according to the EORTC/RTOG

scale. In order to prepare and implement an individual care plan regarding preventive health and care behaviours in patients included in the monitoring on the day of commencing treatment BMI (Body Mass Index) was calculated. An inappropriate body mass index was recognized in seventeen patients (89.5%): 8 patients were overweight (42.1%) and 9 patients (47.4%) – obese. Only two people (10.5%) of the study group had an appropriate BMI.

Table 1. Frequency of occurrence of early grade skin reaction depending on the treated body part

Treated body part	Number of people with early grade skin reaction	
	0*	1*
Head and neck	2	2
Chest	7	0
Abdominal cavity	7	1
Total	16	3

CONCLUSIONS

The course of skin care in patients with diabetes treated with ionizing radiation was going according to the prepared plan. Caring activities being undertaken based on an individual care plan allowed to obtain positive results, which means that in 84.2% of the patients early grade skin reactions in accordance with the EORTC/RTOG scale did not occur, and an early grade 1 skin reaction occurred in one patient (5.8%). It is however disturbing that in the study group an inappropriate BMI was recognized in 89.5% of patients (overweight and obesity), which impacted increased frequency of monitoring skin layers in the area subjected to ionizing radiation.

References

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