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NURSING INTERVENTIONS TO THE PATIENT WITH RADIODERMATITIS GRADE IV: CASE REPORT

INTERVENÇÕES DE ENFERMAGEM A PACIENTE COM RADIODERMITE GRAU IV: RELATO DE CASO

INTERVENCIONES DE ENFERMERÍA EN PACIENTES CON RADIODERMITIS GRADO IV: RELATO DE CASO

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ABSTRACT

Objective: to describe the nursing interventions in the management of radiodermatitis grade IV. **Method:** this was a descriptive study, clinical case-type, developed in the Radiotherapy Sector from a reference Cancer Hospital in Southern Brazil. This study was approved by the Research Ethics Committee of that institution under protocol number 2290. **Results:** the use of the antimicrobial hydrofiber dressing favored the control of signs and symptoms, promoted comfort and pain relief, reduced the degree of radiodermatitis, and enabled the continuation of the radiation treatment. **Conclusion:** the case study generated new information and knowledge for health professionals facing the management of radiodermatitis at more advanced grades. The application of new dressing techniques in conjunction with the clinical evaluation, and decision to pause the radiation treatment, in this case, were instrumental in the success of the therapeutic conduct adopted by the nursing staff. **Descriptors:** Radiodermatitis; Nursing Assessment; Radiotherapy.

RESUMO

Objetivo: descrever as intervenções de enfermagem no manejo da radiodermite grau IV. **Método:** estudo descritivo, do tipo caso clínico, desenvolvido no Setor de Radioterapia de um Hospital Oncológico de referência, no Sul do Brasil. Este estudo foi aprovado pelo Comitê de Ética em Pesquisa da Instituição, protocolo nº 2290. **Resultados:** a utilização da hidrofibra antimicrobiana favoreceu o controle dos sinais e sintomas, promoveu conforto e alívio da dor para a paciente e reduziu o grau de radiodermite, bem como possibilitou a continuidade do tratamento radioterápico. **Conclusão:** o estudo de caso possibilitou a geração de novas informações e conhecimento aos profissionais de saúde frente ao manejo de radiodermite num grau mais avançado. A aplicação de novas técnicas de cobertura em conjunto com a avaliação clínica e a decisão de pausar o tratamento radioterápico, neste caso, foram determinantes para o êxito da conduta terapêutica adotada pela enfermagem. **Descritores:** Radiodermite; Avaliação em Enfermagem; Radioterapia.

RESUMEN

Objetivo: describir las intervenciones de enfermería en radiodermitis grado IV. **Metodología:** estudio descriptivo del tipo de caso clínico, desarrollado en el Sector de Radioterapia de un Hospital Oncológico de referencia, en Sur de Brasil. El presente estudio fue aprobado por el Comité de Ética en Investigación de la Institución, protocolo nº 2290. **Resultados:** la utilización de hidrofibra antimicrobiana ha favorecido el control de los síntomas, ha promovido el confort y alivio del dolor para el paciente y ha reducido el grado de radiodermitis, así como ha posibilitado la continuidad del tratamiento radioterápico. **Conclusión:** el estudio de caso ha posibilitado la generación de nuevas informaciones y nuevos conocimientos a los profesionales de salud respecto a la radiodermitis en un grado más avanzado. La aplicación de nuevas técnicas de cobertura y de evaluación clínica y la decisión de parar el tratamiento radioterápico han sido en este caso factores determinantes de éxito en la conducta terapéutica adoptada por la enfermería. **Descriptor:** Radiodermatitis; Evaluación en Enfermería; Radioterapia.

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INTRODUCTION

Head and neck cancers are considered public health problems throughout the world because of their substantial increase. About 300 thousand new cases are diagnosed annually, representing the eighth most common cancers.¹

The oral cavity is one of the most affected sites among head and neck tumors. It is a disease with high prevalence, mainly in countries with populations of low socioeconomic levels, it is more incident in men than women, between their fourth and fifth decades of life. Recent data indicate that 37% of oral cancers occur in the tongue. In 55% to 70% of cases, it is located on the lateral edge of the tongue, at the junction between the median and posterior middle third.²⁻³

According to the National Institute of Cancer, 90% of malignant tumors are classified as squamous cell carcinoma, which are subdivided in well-differentiated, moderately differentiated, or little differentiated. Often, the disease is diagnosed in advanced clinical stages (grades III or IV), with or without metastasis, which determines worse prognosis and lower cure rates.^{4, 2.5}

The treatment of head and neck tumors is complex and is directly related to the staging of the lesion. Surgical procedure is the gold standard and may be associated with chemotherapy (QT) and radiotherapy (RXT).⁵

The QT and RXT treatment modalities cause change in the patient's quality of life due to side effects. They result from a lack of specificity in these treatments to select only malignant cells and, therefore, healthy cells are also affected. Other important alterations

are nausea, emesis, diarrhea, dysphagia, trismus, and radiodermatitis.^{2.6}

Radiodermatitis is a common side effect of the RXT. The treatment should be interrupted in severe cases until the skin healing occurs, which can compromise the end result of the RXT.⁷ Thus, the focus of the nursing staff is to minimize the side effects from RXT on the patient's skin. However, when the radiodermatitis is already installed, the choice of products for the recovery of this skin should be assertive to minimize treatment interruption or if possible, to avoid treatment interruption.⁸

OBJECTIVE

- To describe the nursing interventions in the management of radiodermatitis grade IV.

METHOD

This was a descriptive study with a qualitative approach, developed in the radiotherapy sector from a Cancer Hospital that is the reference in Southern Brazil. The study was approved by the Research Ethics Committee (CEP) from that institution. The sample was composed by one patient, D.G.C, female, 36 years old, with Squamous Cell Carcinoma (SCC) in the base of the tongue to the right, at the clinical staging (CS) IV, unresectable, who underwent radiation treatment. This patient was followed-up daily in the outpatient nursing clinic, where the radiation treated area was evaluated according to the RTOG Scale (Radiation Therapy Oncology Group) (Figure 1), and interventions were conducted according to the evolution of the skin.

Scale	Reactions
0	No alteration
1	Mild erythema, hair loss, desquamation, decreased sweating.
2	Painful erythema localized moist desquamation and moderate edema.
3	Moist desquamation, confluent, and important edema.
4	Ulceration, hemorrhage, necrosis.

Figure 1. Evaluation of the skin according to the RTOG criteria.

The radiation treatment data were extracted from the electronic and hard copy health records (Tasy) from the patient. The data obtained during the evaluations were analyzed qualitatively with the focus on the variable degrees of radiodermatitis classified through the RTOG, among them Grade I: mild erythema, hair loss, desquamation, decreased sweating; Grade II: painful erythema, localized moist desquamation, and moderate edema; Grade III: moist desquamation, confluent and important edema; and Grade

IV: ulceration, hemorrhage, and necrosis. The patient's complaints were taken into account in the comparison of the daily records from the nursing's evaluations and interventions and the bibliographic survey carried out on the Virtual Health Library website (BIREME).

RESULTS

- Case study
- Patient D.G.C is a female, 36 years old, with complete middle school education, she is a public transportation worker, married, and

born and resident in Curitiba-PR. She was admitted into the triage service from the Erastus Gaertner Hospital in 2012, with the main complaint of pain and sores at the basis of the tongue that had not healed in three years, and one image exam with a result of an expansive lesion on the right side of the tongue base and lymphadenopathy in the submandibular region measuring 2 x 2 mm.

The doctor at this service observed one ulcerated lesion and referred her to the head and neck surgical specialty doctors, who performed a biopsy and found a Squamous Cell Carcinoma (SCC) in the base of the tongue on the right side, at clinical grade (EC) IV and considered as unresectable. Thus, the patient was transferred for the clinical oncology evaluation and follow up with an oncogeneticist because of the absence of risk factors and young age.

Because the patient was already a cancer patient, the doctor draws the family genogram, identifies more relatives at risk, and requests a conversation with everyone in order to monitor them.⁹

The Clinical Oncology service proposed the neoadjuvant treatment with the chemotherapy protocol (QT) AL SARRAF - consisting of Cisplatin (D1) and 5-Fluorouracil (D1 to D5) carried out 5 times a week, with an interval of 21 days. At the end of the second cycle, the patient still did not present

therapeutic response. Thus, a new QT protocol concurrent with the RXT was proposed, composed by Cisplatin chemotherapy every 21 days, and daily sessions of teletherapy in Cobalt-60 (cobalt-60 isotope).¹⁰

The radiotherapy treatment began in October, with 58 proposed sessions and total dose of 54 Gy. At the 21st session, the patient presented radiodermatitis grade IV and the treatment had to be interrupted for 13 days.

The medical and nursing care assessment were instrumental in stopping the treatment.

The case study patient presented painful erythema, moist localized desquamation, and moderate edema in the anterior cervical region until the 20th session (18,62Gy). The irradiated site was daily moisturized with essential fatty acid. After the 20th session, the irradiated site presented hemorrhage when the grade IV radiodermatitis was classified according to the RTOG criteria. In addition to active bleeding, submental edema, dry desquamation, and hyperchromia around the lesion were observed (Figure 2). This rapid evolution is justified by the accumulation of radiation in the irradiated area promoting a lesion from the internal to the external environment.



Figure 2. Radiodermatitis Grade IV - before the application of the special dressing.

Due to the radiodermatitis grade IV, the patient could not follow up with the radiotherapy sessions; the medical conduct was to interrupt treatment for 21 days and patient's referral to the nurse's evaluation.

After evaluation, the cleaning of the region with distilled water and gauze was carried out, covered with a hydrofiber plate consisting of sodium carboxymethyl cellulose; a crepe bandage was used as a secondary coverage to secure the special dressing.

The patient was re-evaluated every two days with the goal of changing the secondary dressing and identify saturation in the special dressing. Because the local saturation was minimal, the hydrofiber plate was held for 13 days. The non-manipulation of the primary dressing led the patient to report improvement in the local pain in the first re-evaluation consultation.

The removal of the primary dressing revealed a regression in the radiodermatitis to Grade III (Figure 3), reduction of the

submental edema, and end of bleeding. However, the patient presented intense

erythema, moderate edema, and moist desquamation in plaques.



Figure 3. Radiodermatitis Grade III - after the application of the special dressing.

The patient returned to finish the RXT sessions after 13 days with the hydrofiber dressing, and the interruption for 21 days was not necessary; she completed the 58 proposed sessions during which, the daily routine of skin hydration with essential fatty acid (EFA) was maintained, once a day, performed by the nurses' service.

DISCUSSION

According to the National Institute of Cancer, the risk factors for the development of head and neck cancers are: tobacco, alcoholism, solar radiation, hot drink consumption, unfitted dental prosthesis, and exposure to the Human Papillomavirus (HPV).¹⁻³ However, the patient denied such habits.

INCA estimated 385 thousand new cases of cancer in the Brazilian territory in 2012; most of them, related to the exposure to environmental factors. However, 38.5 thousand estimated cases are related to hereditary causes. It should be noted that the identification of individuals who have inherited a genetic mutation that confers susceptibility to specific cancers allows the achievement of efforts geared to monitoring, early detection, and cancer prevention.⁹

Genetic counseling consists of detailed mapping and analysis of possible family problems related to cancer. It is a process of effective communication between the physician and the potential patient in which extremely specific questions about family history are made, especially in relation to the incidence of tumors.

Cisplatin is a chemotherapeutic commonly used in the treatment of head and neck CEC; this chemotherapy has a synergistic effect when combined with RXT.¹⁰

The teletherapy in Cobalt-60 is indicated for thin organs due to its low energy emitted.

This energy is emitted through photons and the value is of 1.17 MeV and 1.33 MeV.¹¹⁻²

According to the RTOG (Radiation Therapy Oncology Group), radiodermatitis results from a toxic effect of radiation and can be classified as acute or chronic. Acute, when the toxicity arises during treatment or up to 3 months after the end of treatment; it is characterized by an initial erythema, progressive edema, hyperchromia, dry desquamation, moist desquamation, ulceration, or bleeding. The chronic radiodermatitis arises three months after treatment, or years after the end of treatment; it is characterized by ischemia, pigmentary alterations, skin thickening, telangiectasia, ulceration, and fibrosis.¹³⁻⁴

The radiotherapy routine service consists of daily assessments of the skin by the nursing team (nursing techniques) and weekly consultation reviews by a nurse and doctor. These evaluations require critical thinking and clinical reasoning by the nurse, which are factors that determine the success of interventions in the treatment of radiodermatitis.¹⁵

The conducts are demanded in accordance with these evaluations and directly addressed with the patients to prevent the progression of toxicities and encourage self-care. Interventions against radio-induced toxicities are performed according to the degree of toxicity assessed and the RTOG criteria during the evaluation consultations mentioned above.

The hydrofiber special dressing maintains a moist environment due to its ability to form a soft and cohesive gel, which favors autolytic debridement. It is a dressing indicated for minor abrasions, lacerations, cuts, superficial and second degree burns, vasculogenic ulcers, and chronic and traumatic wounds; it can

remain on the injury for 14 days if not saturated.¹⁶

The ACT promotes chemotaxis (attraction of leukocytes), angiogenesis (formation of new blood vessels), keeps the medium damp, accelerates the tissue granulation process, facilitates the entry of growth factors, promotes mitosis and cell proliferation, acts on the cell membrane increasing its permeability, assists in autolytic debridement, and is bactericidal against *Staphylococcus aureus*.¹⁷

The use of essential fatty acid was decisive for the maintenance and regression of the degree of radiodermatitis grade III to grade II when the sessions of radiotherapy re-started. Therefore, the conduct adopted for the management of the skin acute toxicity was fundamental to ensure treatment continuity, control of the evolution of radiodermatitis, and early return to the radiotherapy treatment.

CONCLUSION

The multi-professional and interdisciplinary care to the patient during the treatment was essential to prevent the worsening in this radiodermatitis case. The use of special dressing was chosen through the nursing consultation; the effectiveness of the antimicrobial hydrofiber composed of carboxymethylcellulose sodium in the treatment of radiodermatitis grade IV during 13 days was observed through the ceased bleeding, re-epithelization of the local tissue, and significant improvement of the local pain.

It is concluded that the use of appropriate products and dressings in injuries, in this case, the antimicrobial hydrofiber, favored the control of signs and symptoms, and, consequently, provided comfort and pain relief for the patient. This fact also allowed the generation of new information and knowledge to health professionals facing the management of radiodermatitis in more advanced grades. The application of new dressing techniques in conjunction with the clinical evaluation and decision to pause the radiotherapy treatment, in this case, was crucial to therapeutic success.

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