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Prevention and management of radiodermatitis: Clinical nursing practices in radiotherapy

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ABSTRACT
Cancer is characterized by the disordered growth of cells in the body's tissues or organs, and radiation therapy is a treatment that uses ionizing radiation to eliminate cancer cells. Radiodermatitis is an adverse reaction to radiotherapy that causes skin and mucous membrane lesions, and may require interruption of treatment for healing. The nursing team plays a crucial role in the prevention and treatment of these injuries, offering specific care for recovery and pain relief.

Keywords: Radiotherapy, Radiodermatitis, Nursing.

INTRODUCTION

Cancer is the name given to the disease that causes the disordered growth of imperfect cells in tissues or organs in any part of the human body, encompassing more than 100 different genera of cancer that are harmful to the health of adjunct tissues or organs of the body (INCA, 2020). Radiotherapy is one of the treatments used in the elimination of cancer cells, applying beams of ionizing radiation to them that are calculated early for each type of cancer in order to reduce the damage caused to adjacent healthy cells, since these will be responsible for the reconstruction of the affected area after the eradication of tumor cells. Radiotherapy can be applied both externally and internally (FLORÊNCIO; SANTOS, 2018).

The adverse reaction usually seen in radiotherapy is called radiodermatitis, which is identified as a cutaneous-mucosal lesion caused by cellular changes caused by the radiation emitted. In cases where the injury is more severe, radiotherapy should be interrupted until skin healing occurs (CARVALHO et al., 2019).

Radiodermatitis is a side effect of radiotherapy treatment, when the patient undergoes this procedure for repeated sessions or the irradiated area is larger, the appearance of this lesion may occur, according to Rocha (2021), radiodermatitis includes a set of skin lesions resulting from intense exposure to ionizing radiation that can reach 85% of patients, where these lesions can intensify due to the patient's physical, clinical and therapeutic conditions, since the extension of the irradiated area, concomitant therapies and daily living habits can contribute to a higher degree of tissue destruction. In this way, the presence of the nursing team can help the patient in the process of healing and relieving the pain of this

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injury, in addition to guiding him/her and the family to have habits that contribute to a better recovery of the affected area and avoid aggravation.

Through the nursing consultation, the nurse advises the patient about the respective precautions that precede and follow the irradiation of the area in order to reduce reactions in the epidermis. In addition, it is necessary to classify the region and integrality in the irradiated tissues through classification scales, where depending on the reaction of the assisted dermis, it is necessary to prescribe products to protect the lesion and assist in the recovery of the affected area (CARDOZO et al., 2020).

For this reason, nursing assistance is based on the preparation, inspection and cleaning of the region where the radiation will be emitted, where the nursing professional clarifies the necessary care and procedures that precede the application of the treatment to patients and their relatives, aiming to maintain skin health and provide an improvement in the patient's quality of life after undergoing treatment (ROCHA et al., 2018).

In view of the above, the research question that is the basis of this study arises: What is the importance of the nursing team in the treatment of radiodermatitis? Thus, we sought to understand what cancer is, its incidence, treatment and possible complications of radiodermatitis. As well as to understand about the prevention and treatment of radiodermatitis in cancer patients undergoing treatment with radiotherapy.

Thus, the present study was carried out through a bibliographic review of material already published in magazines, newspapers and reliable websites that address the chosen theme, where after applying analysis of the material with the inclusion and exclusion criteria specified in the methodology, the material referenced in this work was obtained.

Thus, we will address in the development of item 1.1, the concept and incidence of cancer. Next, we will understand how radiotherapy treatment works in cancer patients. In item 1.3 we will understand the effects of radiodermatitis and care to prevent aggravation. Finally, in the fourth and last item 1.4 of the development, we will see how important the nursing team is in monitoring this treatment.

OBJECTIVES

GENERAL OBJECTIVE

The general objective of this study is to examine and highlight scientific analyses on nursing care in the prevention and treatment of radiodermatitis in cancer patients who underwent radiotherapy treatment.

SPECIFIC OBJECTIVES

a) Understand what cancer is, incidence, treatment and the possible complication of radiodermatitis;
b) To understand the prevention and treatment of radiodermatitis in cancer patients undergoing radiotherapy treatment.

RESEARCH METHODOLOGY

This is a literature review.

According to Gil (1994, p. 71):

> The bibliographic research is developed from material already prepared, consisting mainly of books and scientific articles. Although in almost all studies some type of work of this nature is required, there are studies developed exclusively from bibliographic sources.

Initially, the selection of material was carried out through the publication of articles related to the theme by virtual means in the databases: SCIELO and Google Scholar, as well as other data sources such as reliable sites according to the relevance to this study. The keywords used in the data search were: radiodermatitis, radiotherapy, oncology nursing, and nursing care.

As inclusion criteria, research that answers questions related to this theme, published in Portuguese, including book chapters, manuals with a time frame between the year 2018 and 2022, were inserted.

The following parameters were adopted as exclusion criteria: articles published outside the Portuguese language, which were not in the period established for the study or which were not yet relevant to the theme.

From the analysis of the materials, the research question on which this study is based arises: What is the importance of the nursing team in the treatment of radiodermatitis?

In view of this question, the general objective of this study was to examine and evidence the scientific analyses on nursing care in the prevention and treatment of radiodermatitis in cancer patients undergoing radiotherapy treatment. However, we will stick to the delimitations for this study, constituting as follows:

a) Understand what cancer is, incidence, treatment and the possible complication of radiodermatitis;
b) To understand the prevention and treatment of radiodermatitis in cancer patients undergoing radiotherapy treatment.

DEVELOPMENT

CANCER AND ITS INCIDENCE

Cancer is the unbalanced increase of imperfect cells that group together forming a mass, which circumstantially penetrate the set of organs around it, and this mass can be classified as benign or malignant, the latter being a neoplasm that results in the death of approximately 190 thousand individuals each year, becoming a public health problem in Brazil, as social and financial factors contribute to the increase in the number of deaths from this pathology (SILVA, 2022).

Advanced age, genetic alterations, and part of the population are concentrated in large urban centers, thus exacerbating exposure to carcinogenic factors, such as: chemical substances, smoking, environmental pollution, and socioeconomic factors that influence consumption and exposure to highly carcinogenic products (SILVA, 2022).

Each year the number of new cases increases considerably, and according to INCA (2020) there were about 625 thousand new cases in Brazil in the years 2020 to 2022. It is thought that the crude proportions of neoplastic occurrence per 100 thousand individuals (SILVA, 2022).

In both females and males, colon and rectal cancer is the second most common occurrence. It is on the agenda as the 3rd highest reason for deaths in Brazil. In 2019, 10,385 women and 10,191 men died as a result of this pathology. What is known through studies so far is that the main reasons that contribute to the appearance of this pathology are diets with little fiber and factors such as obesity and sedentary lifestyle (SILVA, 2022).

Nowadays, new technologies have innovated the therapeutic resource of cancer patients. This cooperation aims to offer indispensable resources to carry out these interventions. We must emphasize that this elaborated technical knowledge grants the therapeutic field with the necessary precision. Although the new imaging equipment allows for a better definition of the anatomy of each patient, a better identification of the tumor mass and normal tissues, the humanitarian competence to recognize these masses in a primordial and continuous way unfortunately does not develop at the same speed (SILVA, 2020).

This tumor mass, determined with greater accuracy, is capable of being treated more effectively, delivering the least possible amount of ionizing radiation to healthy cells, expanding the therapeutic indication, improving tumor control, and the probability of cure, with an increase in the quality of life of individuals undergoing radiotherapy (SILVA, 2020).

TREATMENT WITH RADIOTHERAPY

Radiotherapy has the purpose of eliminating cancer cells through electromagnetic waves, in which they are applied in the area indicated by the specialist doctor, but to achieve an efficient effect it is

necessary to know the amount of radiation to be applied to each patient, as well as the condition in which the pathology is and the exact location of the tumor (SILVA, 2020).

We can then understand that radiotherapy is a therapeutic procedure applied to a certain place or body region, used as a single treatment or in conjunction with other curative means. Radiotherapy associated with surgery or chemotherapy may occur before, during or after these procedures. In addition, its indication occurs when remission (tumor reduction) is sought; prevention (when referring to pathology in the subclinical phase, that is, there is no tumor volume present, but probable scattered tumor cells); palliative treatment (when improving symptoms such as severe pain, bleeding and organ compression); and ablative surgery (when radiation is administered to eliminate the function of an organ, such as the ovary, for example, to achieve actinic castration) (SOUZA, 2019).

It is believed that the results of radiotherapy are based on the therapeutic location, and differ for each person. Each region of the body has its individualities, consequently, the consequence will depend on its location, since when obtaining constant radiation, the cells do not have adequate time and aptitude to reestablish themselves. Thus, it is essential that the injury be distinguished and with prior therapeutic recourse (MONTEIRO, 2020).

RADIODERMATITIS RESULTING FROM RADIOTHERAPY TREATMENT

With reference to the revelations of radiodermatitis, it is identified by the audience by divergent panoramas, which result from discomfort in the locality, erythema, pruritus, progressing to desquamation, moist desquamation until necrosis. These occurrences occur due to the projection of the ionizing ray, resulting in cellular radiotoxicity, causing the inflammatory process. It emphasizes that professionals know how to distinguish radiodermatitis through signs and symptoms manifested by patients, in this way, they provide care, in order to deviate from progressiveness in the face of other degrees (MONTEIRO, 2020).

The degree of radiodermatitis is measured by the cell damage caused by radiation and the insufficiency of balance in the construction of new cells in the basal layer, and the annihilation of the cells of the exteriority of the skin. For this reason, in the practice of radiotherapy, the analysis, explanations, methods need to be daily in the care of radiodermatitis, since its advance can be accelerated, causing an injury in the internal environment of the body to the outside (MONTEIRO, 2020).

Inherent reasons, in the same way, can intervene in the degree of the reaction and diversify according to the patient, such as: age, the size of the irradiated site, physical structures that form folds, or continuous attrition, high or low body mass index (BMI), alcoholism, or smoking, pre-existing circumstances or pathologies are capable of delimiting the degree of intensity of the injury (MONTEIRO, 2020).

The appearance of the lesion usually occurs from the second week of therapy, generally remaining in grade II, thus, in another investigation the appearance of the lesion was after the 12th radiotherapy session. The magnitude of the reactions is due to the therapeutic planning, in which the method and the number of therapies are resolutive for a greater degree of tissue annihilation, since continuous radiation makes the stages of proliferation, maturation, and restoration, common in the healing follow-up, impossible (ROCHA, 2021)

To moisturize the skin, creams, lotions, ointments, gels and other non-irritant products are applied to protect the dermis. The appropriate product to be applied in the case of radiodermatitis is defined according to the professional's observation, paying attention to what is provided by the health institution. Dressings such as hydrocolloid, hydrogel, silver sulfadiazine, and cleaning with hydrogen peroxide, saline solution or other wound cleaning product that reduces the risk of infection. Corticosteroids and oil-based moisturizers can also alleviate the discomfort related to radiodermatitis (CARVALHO, 2019).

Hydrocolloids are determined as dressings composed of an outer layer of polyurethane and an inner layer of gelatin, pectin and carboxymethylcellulose, these facilitate the perfect site for the lesion bed, favoring the reduction of exudate, providing smoothing, and stimulate granulation and intensify the amount of collagen, fundamental for healing evolution (CARVALHO, 2019).

Since the loss of skin integrity caused by radiodermatitis carries the risk of the evolution of infections, the topical antimicrobial 1% silver sulfadiazine is a widely used dressing for lesions. Its antimicrobial action derives from the action of its agents on microbial cells, deteriorating them (CARVALHO, 2019).

For this reason, as the focus of Nursing Science, there are certain challenges, including the practices of new studies that guarantee not only the assertive selection of topical therapy, but also the care associated with its application, since the nurse has his conduct outlined in the care process, which ranges from prevention to treatment of this characteristic of injury (VIANA, 2021).

THE IMPORTANCE OF NURSING

It is observed that oncology has its specialties, which requires a certain professional capacity from the nursing team, taking into account that it works from the beginning to the end of the therapeutic resource. The relevance of the nursing team being qualified to meet the needs of the procedure and the uniqueness of each patient is highlighted (VIEIRA, 2022).

Thus, it needs to continue at all times, striving to obtain continuous training, improving itself, in order to have knowledge of the functioning of radiotherapy and the impacts it has on patients. Thus, prevention needs to be diversified through appropriate techniques to reduce or cure unfavorable reactions to radiotherapy (VIEIRA, 2022).

However, the professional's performance through the nursing consultation is essential, as this provides precaution and control of these reactions, leading to the direction and acceptance of the healing method, even in the well-being of patients (VIEIRA, 2022).

Thus, the nursing team plays a fundamental role in instructing patients in the therapeutic process of radiotherapy and in the administration of these reactions that are capable of creating a large lesion (VIEIRA, 2022).

FINAL CONSIDERATIONS

The main objective of this study was to examine and highlight scientific analyses on nursing care in the prevention and treatment of radiodermatitis in cancer patients undergoing radiotherapy treatment. We also had the following specific objectives: To understand what cancer is, incidence, treatment and the possible complication of radiodermatitis; Understand about the prevention and treatment of radiodermatitis in cancer patients undergoing radiotherapy treatment. All the objectives proposed in this work were achieved.

We can conclude that the term cancer is given to the disorganized growth of cells in a certain region of the human body that compromises health and can often lead to the death of the patient if it is not treated or if it is diagnosed late. Somehow, these disorganized cells enter groups and organs around them, generating malignant neoplasms and claiming thousands of lives annually, where social and financial conditions directly influence their proper diagnosis and treatment.

In addition, genetic factors, the exaggerated use and consumption of carcinogenic substances, exposure to environmental pollution and other socioeconomic factors greatly increase the chances of its incidence.

To treat the compromised area, radiotherapy is one of the treatment options, new technologies and resources seek to improve the accuracy of ionizing incidence in the affected region to reduce the damage caused to healthy cells, because with greater accuracy higher doses can be applied, reduces ionizing incidence in healthy cells, improves tumor control, increases the probability of cure and the quality of life of patients undergoing radiotherapy. However, the human competence to recognize these masses in a primordial and continuous way does not advance at the same pace.

Thus, in the prevention and recovery of radiodermatitis, the work of the nursing team professional is of paramount importance, as care must pay attention to the patient's signs and symptoms. Radiodermatitis is identified by divergent panoramas such as: discomfort at the application site, erythema, pruritus, desquamation, moist desquamation until necrosis. It is extremely important that the nursing team is well prepared, guides and uses preventive means in patient care, in order to identify and care for

radiodermatitis before it worsens, since it can evolve into an infection and compromise the uninterrupted continuity of treatment.

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