

Nursing Management in Radiotherapy Skin Toxicity: Our Experience

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Radiation therapy (radiotherapy, radiation oncology) is the use of ionizing radiation for medical purposes. It's used with surgery and medical oncology and represent one of the most important weapons in the fight against cancer [1]. It can be used in different settings: Exclusive (definitive), neo-adjuvant, adjuvant or with palliative purposes, with different doses and fractionations. It represents one of the most expanding medical fields, with a tumultuous and challenging technological progress. The new radiation techniques (3DCRT, IMRT), new technologies (new LINAC, MRI-guided, tomotherapy) and the new particles used (protons, heavy ions) represent a challenge and a fascinating frontier for the entire medical audience. The new radiotherapy combination with chemotherapy and/or immunotherapy are growing up in preclinical and clinical routine, bringing new fields of application and ever more hopes for all cancer patients [2]. As technology improves, new toxicities and different side effects appear. Radiation therapy assure safety and high cure rates, but is obviously burdened with numerous issues. These acute and chronic side effects could change according to their radiated body area and anatomic structures involved. These toxicities are due both to treatment related factors (particles used - electrons, photons, protons -fractionation, dose) and patient related ones (age, concomitant medical conditions, irradiation site). Several studies [3] show that skin toxicity is one of the most impacting factor on patient's quality of life [4]. Skin can be an "innocent sacrifice" during radiotherapy treatments with discomfortable and painful side effect. Several scientific studies demonstrate how this issue matters to medical and patients community [5]. Many studies evaluated the efficacy of several topical therapy, skin cleansing and oral supplements in the management of radiotherapy skin toxicity [6].

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We can find in medical literature a lot of guidelines supporting toxicity management [7]. A correct staging, according to validated international scales (RTOG, CTCAE), is essential [8]. This standardization avoids medical prejudice allowing the objective assessment of the problem. It's essential, first of all, to explain to the patient how to avoid some incorrect behaviors, for example skin hygiene, and to instruct them on the correct application of detergents and topicals [9]. To avoid all these problems, particular attention to this aspect of radiotherapy was given a tour institution, with a cascade system, involving the entire medical and nursing team. Many scientific papers have been written regarding this topic, enhancing the fact that few radiotherapy departments involve the nursing team in the management of radiotherapy skin toxicity [10,11]. The purpose of this small communication is about our experience in managing skin toxicity involving the entire medical and nursing team at our department. Nurse has always represented the patient's first contact in a medical department, representing, for the patient and his family members, a fundamental actor in the process of knowledge and awareness of the medical pathway. Patients who need radiotherapy are often called upon to face many challenges both related to treatment (physical and technical) and from a psychosocial point of view [12]. Each patient reacts differently to radiation treatment from a medical and a personal point of view. In this context the nurse has a key role, a professional figure able to teach them how to manage the treatment both at the hospital and at home. Some patients have limited knowledge of the whole radiotherapy process and can tend to magnify or minimize some aspects of the treatment [13]. For these patients it is essential to ensure an optimal quality of life. We must not forget that radiotherapy can be seen as a difficult psychological path, linked to the idea of illness and death (e.g. false social beliefs as being radio active) that must be managed calmly and professionally [14]. In this path, a comfortable hospital environment is essential and the patient must always feel part of the decision making process. The nurse, for what we have just said, can represent a suitable and familiar figure for all these needs. The idea of a nursing protocol in radiotherapy is not recent, but in some medical situations it represents the standard organization [15,16]. Starting from these experiences, we have taken this path as our own, adapting it to our needs. The first step is the visit with the radiation oncologist, with the clinical examination and the collecting of the entire clinical history. In this moment the indication to the radiotherapy treatment is given. The second step is the CT simulation and the contouring procedure of the target with the collaboration of the medical physicist. This allows to prepare the personalized treatment plan. At this point the patient can start radiotherapy, after further consultation with the radiation oncologist and the nurse. The two professional figures collaborate in the collection of the remote and pathological anamnesis and in the explanation of the possible side effects of the radiotherapy treatment. Regarding skin toxicity, the patient is photographed, the skin photo type and any skin problems reported in the clinical folder. At this point, the doctor evaluates the possible topical and detergent to be prescribed to the patient and the dedicated nurse explains in a clear and accurate language all the main indications for a correct dermatological hygiene. This phase should not appear so obvious because some patients,

especially those with a low level of education or with important skin problems (dermatitis, psoriasis) may find very difficult to understand how to use a detergent or apply a specific cream [17]. Very often patients are told how to deal with common operations such as hair removal or shaving which can become very delicate during radiation treatment. Figure 1 shows some generic recommendations that are discussed at our center. If needed, this information is printed and given to the patient. After the first RT session, the patient is invited to return in the ambulatory, showing the nurse if he has understood the previous indications and invited to apply, if possible, the prescribed topical therapy. This is a fundamental phase, in which both the patient and the doctor and nurse share doubts and uncertainties. During the therapy, the whole team is dedicated to the patient who is visited every week by the doctor and the nurse. Any acute side effects are managed with appropriate modification of the therapy and the nurse is often called upon to re-explain and re-educate the patient on different problems. Staging of skin toxicity (RTOG, CTCAE) by the doctor and / or nurse is fundamental, useful both for assessing the effectiveness of the prescribed aids and for further standardization of the skin toxicity [18]. At the end of the therapy, a final interview with the doctor and the nurse records all the toxicities and, after the delivery of the medical record, all subsequent follow-up are scheduled. Usually, the nurse explains to the patient how to treat any major side effects with customized solutions and more challenging drugs. In this case, about ten days after the end of radiotherapy, the patient is called back for a further brief interview. Sometimes, radiation oncologist and nurse team face chronic side effect like fibrosis and teleangiectasia. This algorithm for managing skin toxicity, applied at our institution for about three years, has allowed us to significantly reduce skin toxicity, through a constant commitment of the entire medical and nursing team, always offering advanced and scientifically proven treatments. Nurses dedicated to radiotherapy have all undergone a specific training period in a radiotherapy department during their course of study. This has allowed us to avoid misunderstandings with cancer patients. Our management algorithm can certainly be improved and still much needs to be done to ensure the best management of skin toxicity, which is the responsibility of both the doctor and the nurse. Experiences like this can be a stimulus and a meeting point for radiotherapy departments and for a correct integration of all the different skills involved.



Wear loose clothes. Try and wear cotton next to your skin.

Don't rub or scrub your skin.

Never put anything very hot or cold on the area. (For example heating pad or ice pack).

Protect your skin from the sun or cold wind. Use a hat or cover the area.

Keep the area out of the sun for a few months after treatment.

Don't use tape or Band-Aids on the area.

If you need to shave, use an electric razor.

Figure 1: Recommendations for skin care in patient undergoing radiotherapy [19].

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