Wounds caused by radiotherapy

Cancer patients who have undergone radiotherapy too often receive differing advice about irritation or wounds caused by radiotherapy. In fact it is essential that doctors and nurses give out the same advice for the various grades of skin reaction. After all, the only thing cancer patients themselves have any control over is their own body, and they want to ensure it receives optimum care. Together with dermatologists, nurses from the Limburg Oncology Centre (LOC) have drawn up a skin care protocol that aims to standardize wound care following radiotherapy.

We spoke to nurse Stefan Claes, responsible for wound care at LOC radiotherapy department. Together with his colleagues and head nurse Luc Pannekoeke, he has drawn up a protocol that functions as the standard within the oncology centre. LOC doctors have validated this protocol, which also follows the guidelines developed by the radiotherapy workgroup of the Association of Radiotherapy and Oncology Nurses (VVRO). Since 2003, the 35 doctors and nurses of the radiotherapy department have given the same advice to all cancer patients undergoing radiotherapy. At LOC, every year approximately 2000 cancer patients receive radiotherapy, including 500-600 patients with breast cancer.

GRADES OF SKIN IRRITATION FOLLOWING RADIOTHERAPY
Grade 1: red erythema: irritation
Grade 2: dry desquamation (sloughing): pain
Grade 3: moist epidermolysis: moisture
Source: LOC skin care protocol

Skin irritation following radiotherapy
Ionizing radiation without doubt damages the hereditary material in cell nuclei, resulting in cell destruction. In fact, we are dealing with proliferative cell death: the cell dies off during the next cell division. In the first few weeks everything goes well, but from the third week, the first symptoms begin to appear on the skin.

The first signs of skin irritation manifest in the form of mild erythema with itching and dry skin (= grade 1 radiodermatitis). Over time, this redness becomes more pronounced and dry sloughing may occur. The itching becomes worse or progresses to burning pain (= grade 2 radiodermatitis). At the end of the radiotherapy, or during the first week following it, the skin has become rather fragile. It goes dark red or purplish red and moist skin lesions appear (= grade 3 radiodermatitis).

According to Stefan Claes, each grade is closely associated with a typical picture that the patient's complaints focus on. The three keywords in terms of complaints are, successively: irritation, pain and moisture (see box). For the team, these signal that a specific approach should be taken. However, not all patients undergo these three stages. It is mainly the breast cancer and ENT patients who have the highest risk profile.

The LOC radiotherapy department rarely or never sees grade 3 lesions in patients who have undergone mastectomy, for example. Skin folds (armpit, inframammary fold) are affected to a greater degree. Larger breasts have more skin folds and therefore moist skin lesions develop more rapidly.

Radiation damage is also greater at sites where radiotherapy beams overlap with each other (e.g. around the nipple) or at sites with less breast volume (e.g. at the top of the breast). *"Grade 2 and 3 lesions are most common at these sites".*

A second group that is very susceptible to skin irritation is patients who undergo radiotherapy of the ear, nose and throat. The irregular shape of the neck and face once again play an important role here. *"The scales drawn up by the EORTC/RTOG also include grade 4 skin lesions with necrosis or ulceration of all of the skin (large skin defects). Therapy corresponds to treatment of grade 3 lesions. That's why we prefer to use a simpler, more practical scale that suits clinical practice."*

Skin care according to grade of skin irritation
According to Stefan Claes, patients who undergo radiotherapy want to prevent severe lesions at any price and want to make use of the highest quality products. It is very important that nurses and doctors give out standardized information.

The skin care protocol includes on the one hand a number of preventative measures to be taken (avoidance of pressure and friction, washing with "soap-free soap", showering on a gentle shower setting, no exposure to direct sunlight, no application of sticking plasters to the region that underwent the radiation, etc) that can be used from the start of the radiotherapy. On the other hand, skin care varies according to the grade of skin damage. Patients at high risk (radiotherapy for breast cancer, ENT cancer) in all cases receive a topical dexpanthenol-based product. *"This moisturizing cream contains no colorants or allergens and does not interact with the radiation. We then follow the signals seen in the patient. In irritation such as worsening redness, itching and dry skin, we ask if the preventative measures and the cream have been employed correctly. In severe itching – that wakes up the patient at night – Alhydran® cream may offer relief."*

If the patient complains of pain and extreme redness, then he/she has reached the second stage. *"At that point we switch to mainly silicone wound dressings. The application of these interactive wound dressings to clean skin generates an analgesic effect and provides an ideal moist environment that promotes wound healing. The radiated region should always be cleaned under a gentle shower setting, and the patient should then carefully pat the irritated zone dry and apply another wound dressing."*

With open, moist lesions (third stage) the patient can still use wound dressings. *"At sites where wound dressings are difficult to apply or on large skin defects, we also use a wound-healing gel (Flaminal® Hydro). A thick layer of this alginate-containing gel generates a cooling, antimicrobial effect. The thick gel layer may interfere with the radiation dose. At home, before the radiotherapy, the patient must rinse off the gel. After the radiotherapy, the nurses apply another layer. The Algogel is combined with a non-adhesive, absorbent compress and a fixative dressing."*

The process of proliferative cell death means that the damage does not immediately stop when treatment is ended. On the contrary, in the first few days, it may even increase. The therapy and preventative measures that have been introduced must be continued for about a further ten days if necessary. Only after two weeks will the damage that has occurred slowly heal. In this recovery period, which may last a few weeks, it is important to keep the skin well hydrated.

Stefan Claes concludes: *"I would emphasize the importance of moisture, both at the preventative stage (shower, lotion), and at the recovery stage (cleansing, moist wound healing). Also, the success of good wound care depends on a clear, succinct protocol that must be used by every care provider."*

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More information from www.wro.be.
The full protocol for care of acute skin reactions during and following radiotherapy can be consulted on the LOC website: http://www.loc.be => Zorgverleners/Actueel/Folders (Care providers/News/Folders)