

# Radiation Rescue

White Paper

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November 9, 2015

Radiation  

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**RESCUE**

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## EXECUTIVE SUMMARY

### **Radiation Dermatitis: Back to First Aid Basics – Cool the Burn**

Radiation dermatitis is often a very painful and uncomfortable side effect of the radiation therapy used to treat many types of cancer. In some cases, there may be so much skin damage and discomfort to the patient that it can cause the treatment to be discontinued before the prescribed dosage has been achieved. Radiation therapy burns are a side effect of external beam ionizing radiation, and are generally minor burns that are best treated first by cooling the skin and relieving minor pain. Most medical professionals suggest radiation burn creams to alleviate the radiation dermatitis — after it has occurred — instead of considering ways to stop the burn progression and prevent, or reduce, the radiation dermatitis before it occurs. Bauer Medical has evidence that shows that the simple first aid concept of first cooling a burn will help eliminate or reduce radiation dermatitis.

## DATA

### **Background on Radiation Therapy and Radiation Dermatitis**

In the United States, nearly one million cancer patients were treated with radiation therapy in 2004 for a total of approximately 23.4 million radiation treatment visits. About two-thirds of all cancer patients will receive radiation therapy during their illness<sup>1</sup>.

The trauma to the skin is a result of cellular damage caused by the ionizing radiation. According to the book *Supportive Care in Radiotherapy*<sup>2</sup>, “the basal layer of the epidermis proliferates rapidly, so it is particularly sensitive to radiotherapy. Ionizing radiation essentially damages the mitotic ability of clonogenic or stem cells within the basal layer, thus preventing the process of repopulation and weakening the integrity of the skin. Radical radiotherapy repeatedly impairs cell division within the basal layer, and so the degree to which a skin reaction develops is dependent on the survival of actively proliferating basal cells in the epidermis. Moist desquamation occurs when clonogenic cells in the basal layer are sterilized, thus rendering cells unable to repopulate in time to replace the damaged tissue. Consequently, the epidermis becomes broken (Glean et al 2001, Hopewell 1990).”

Most patients will experience varying degrees of radiation therapy burns during the course of radiation treatment.

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<sup>1</sup> About Radiation Therapy, 2014: Sources: Physician Characteristics and Distribution in the U.S., 2010 Edition, 2004 IMV Medical Information Division, 2003 SROA Benchmarking Survey

<sup>2</sup> Radiation skin reactions from SUPPORTIVE CARE IN RADIOTHERAPY (March 2003), Mary Wells, Sheila MacBride

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**Radiation Dermatitis Grade Levels are as follows —**

Grade 1: Faint erythema or dry desquamation

Grade 2: Moderate to brisk erythema; patch, moist desquamation, mostly confined to skin folds and creases; moderate edema

Grade 3: Moist desquamation other than skin folds and creases, bleeding induced by minor trauma or abrasion

Grade 4: Skin necrosis or ulceration of full thickness of dermis; spontaneous bleeding from involved site (3)

Many patients will have a combination of the above. The skin reactions will usually begin within the first two or three weeks of treatment, and will increase with the accumulation of the dosage. With some patients, skin reactions will occur immediately. Severe skin sensitivity can be a result of existing conditions such as prior skin damage from sunburns and overall health. If the patient is undergoing chemotherapy at the same time, the skin reactions are typically more pronounced.<sup>3</sup>

According to Supportive Care in Radiotherapy, few studies have been performed that describe the experience of skin reactions from radiation therapy. However, the quotes below illustrate the distress caused by skin damage resulting from radiotherapy:

- Didn't just get redder, it erupted ... it was one great big scabby thing ... like it had been burnt ... you see these people on television who've been burnt, you know that's all cracked, it was like that. (patient with cancer of the larynx who developed a skin reaction after treatment was completed).
- I stripped off a load of skin here, I can't feel this at all anyway and I hadn't realized it had got stripped off – it was all bleeding and raw. (patient describing what had happened as a result of washing and shaving his radiotherapy site following a parotidectomy, which had left him with superficial numbness of his cheek and jaw).
- My breast is so uncomfortable and painful. I am doing everything I should and it is not improving. The doctor warned it could be like this but I didn't expect it to be so bad. I don't think having radiotherapy was such a good idea.
- Had very little sleep owing to pain from the burn on the side of my breast.
- Didn't go to church because I didn't want people looking surreptitiously at my burns

**Treatment of Skin Reactions**

Cancer patients undergoing radiation therapy are generally advised to apply a skin care product to the radiation site to help limit the amount of skin damage that will occur during their treatment. However, at this time, there is no widely accepted evidence showing what type of treatment is best and that will provide relief and comfort to the patient, while also preventing damage to the skin. The damage that may occur can affect their quality of life, and

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<sup>3</sup> The Management of Radiation Dermatitis in Patients Receiving Radiotherapy and EGFR Inhibitors; EUROPEAN SOCIETY FOR MEDICAL ONCOLOGY, (2007), J. Bernier; J. Bonner; J. B. Vermorken; R.-J. Bensadoun; R. Dummer; J. Giralt; G. Kornek; A. Hartley; R. Mesia; C. Robert; S. Segaert; K. K. Ang

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in extreme circumstances, affect the outcome of the treatment by limiting the dose or the number of treatments the patient may have.

Recommended treatments of skin reactions vary widely between facilities. They are often suggested once the symptoms appear to provide relief.

They include:

- Gentle washing and avoidance of friction
- Use of petrolatum-based radiation burn creams such as Aquaphor, emollients and moisturizers when the erythema develops
- Wearing loose clothing
- Avoidance of perfumed products and deodorants

The purpose of the skin care during radiation therapy is to help the patient manage their discomfort, allow them to complete the course of treatment, and to improve their quality of life during this difficult time. Bauer Medical has evidence that shows the first step in skin care during radiation therapy should be to try to prevent the skin breakdown, rather than treat the skin after it is damaged. They believe the treatment should begin with the standard first aid protocol for burns: cooling the burn to prevent further burn progression and relieving the pain that results from damage to nerve endings. Radiation burn creams and other products with oils and petrolatum, that are often suggested after the skin is damaged, do not cool the skin but will trap the heat in the tissue, thus leading to more skin breakdown.

### **“First Aid Treatment” for Radiation Burns**

Having spent 20 years as executives with a world-leader in burn care products, the founders of Radiation Rescue developed a hydrogel formula specifically for Radiation Dermatitis. Over those 20 years, many cancer patients reported that they had used a first aid for burn product in conjunction with their radiation treatment. Their use of such a product on sunburns and other minor burns previously had caused them to believe this type of product should also help prevent the surface skin damage that they were told would occur with the radiation treatments.

These patients have indicated that the use of the first aid product helped to eliminate some of the skin damage that they had been told to expect. For this reason, Bauer Medical has created Radiation Rescue to meet the specific needs of the radiation therapy patient. Radiation Rescue is a thick, viscous hydrogel that has been formulated to adhere to the skin to allow for the cooling to begin. The formulation also includes ingredients to create, a silky, smooth texture that is soothing as it is applied. The water-based formulation is petrolatum-free to ensure that the heat from the radiation therapy is not trapped in the skin.

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Bauer Medical believes that the first aid for burn protocol helped the radiation patients because it cooled the surface of the skin and helped minimize the breakdown of the tissue that would have occurred without the cooling.

If a burn is cooled quickly, it can help to minimize the severity of the damage. Even in a minor burn, there will be exposed nerve endings that create pain. When Radiation Rescue is applied in a thick layer, shortly after the radiation therapy treatment, the severity of the skin damage will be reduced and pain will be eliminated.

Bauer Medical believes that systematic use of Radiation Rescue, from the first day of the radiation treatment, will help to prevent skin damage, including erythema and dry or moist desquamation from occurring in the radiation area.

The radiation burn creams and other products often suggested for radiation dermatitis treatment are meant to treat the radiation therapy burn, in other words, treat the skin after the damage has occurred. Radiation Rescue has been formulated to eliminate, or reduce the radiation burns and damage. Reducing or preventing the radiation dermatitis creates the outcome of:

- Allowing for every radiation dose to be administered on time
- Eliminating the need for expensive radiation burn creams resulting in lower cost of treatment
- Providing a better quality of life for the radiation patient

Although this type of product may not be critical to the patient's successful treatment of the cancer, it does provide supportive care that will help the patient through a difficult time.

## EVIDENCE

Radiation patients who have used Radiation Rescue following each treatment have stated the following:

- 51-year-old female - Skin Cancer: *Note from radiation technician: This patient was receiving similar doses of radiation to each ear. The patient is a radiation medical professional and saw the value of trying two products at the same time. She agreed to try Radiation Rescue on the left ear and Aquaphor, (the standard treatment at the time) on the right ear. Approximately halfway through the treatment, the patient added Radiation Rescue to the right ear, in addition to the Aquaphor. At the end of the radiation treatment, the left ear, which used only Radiation Rescue, was Grade 1 Radiation Dermatitis. The right ear, which was a combination of Radiation Rescue and Aquaphor was Grade 3 Radiation Dermatitis.* "I am a patient who received radiation therapy to both of my ears at the same time. I started using Radiation Rescue on the left ear with good results. I used Aquaphor on the right ear. The left ear became so sore that I started using Radiation Rescue
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on it also. I used Radiation Rescue once or twice a day for about 30 minutes. Overall, I found that Radiation Rescue helped relieve the pain and burning” (Treated for skin cancer)

- 52-year-old female — Breast Cancer. Had also completed chemotherapy prior to radiation treatment. “I recently underwent 28 radiation treatments for breast cancer. I decided to give the the product a try as I was concerned about having pain from the burn of the treatment. I checked with my radiation oncologist before beginning treatments and they approved as they had seen other patients use the product with success....Through the course of the the five and a half weeks of treatment, my skin got only slightly red. The radiation technicians commented on how great my skin looked..... My surgeon asked what I had used during treatment. She was impressed with how the treated area looked.”
- 54-year-old female — Breast Cancer. Began use of Radiation Rescue at day 16 in the radiation therapy cycle. “I just want to reiterate how Radiation Rescue saved me from delaying my radiation. I am in active treatment for breast cancer. At the end of my first week I had already started experiencing dermatitis and burning. I was using the gel provided "Natural Care Gel" and it wasn't working. My husband found pure aloe; it didn't work. My family gave me aloe plants; they didn't work. I tried castor oil and it didn't work. My doctor prescribed Triamcinolone Acetonide cream not only did it not work, I got worse.

I am allergic or sensitive to many meds and creams and was very concerned that I would have to take a break from radiation to heal. I am not sure why but you sent a couple of tubes to my radiation oncologist for another patient. It was my lucky day I was the recipient of your amazing product. They weren't sure it would work but I was open to trying anything!

My nurse had seen me the day before when we discussed maybe taking a break from treatment. The next day my nurse stopped by to see how I was doing before my treatment. When she saw the difference she was amazed. The redness was gone, my dermatitis had dramatically improved, I went ahead with my treatment.

I have been using your product faithfully for twelve days. I come home with pink skin and by morning it has faded. I only have four more full treatments with an additional five radiation boosts to my surgical bed where was the tumor was removed. I would not have been able to continue with my planned treatments if it weren't for your product. You may not realize it, but any delay can reduce the effectiveness of these treatments. Radiation Rescue kept me from any delay which gave me the best possible outcome for my treatment.” (Treated for breast cancer)

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- 58-year-old female — Lung Cancer. “I began using the Radiation Rescue by the third day. I did the same after each radiation treatment. I have not had redness or the sensation of a sunburn. My skin looks really good, no pain, no redness. You can’t tell the difference from where the radiation has been targeted and the surrounding skin.” (Treated for lung cancer)
  - An oncology nurse made the following comments regarding the use of Radiation Rescue in conjunction with her radiation therapy:

“After applying this product, our patients experience immediate relief. These products sooth and restore irritated skin. They help to relieve painful skin with non-greasy ingredients. We prefer our patients begin using Radiation Rescue on day 1 of their radiation treatments to help delay and reduce painful skin and help to minimize skin breakdown and infection.”
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