



## **RADIATION THERAPY - LOCAL AND TSEB**

Expert review by Cutaneous Lymphoma Foundation's Medical Advisory Council  
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### **WHAT IS RADIATION THERAPY?**

Radiation therapy is the use of focused, high-energy beams of X-rays, photons, or electrons to treat cancer. In fact, the mycosis fungoides variant of cutaneous T-cell lymphoma (CTCL) may have been the first type of cancer treated with radiation therapy after X-rays were discovered at the end of the 19th century. Today, radiation therapy is used to treat individual CTCL lesions (local or spot treatment) or the entire skin surface (total skin).

### **HOW IS IT DELIVERED?**

There are different types of radiation suitable for treatment of the skin, with low orthovoltage X-ray and electron beam most commonly used. Electron beam therapy is most frequently used, as it delivers radiation primarily to the layers of involved skin and spares the deeper tissues and organs of radiation effects. Orthovoltage X-ray therapy is still employed for treatment of isolated skin tumors or ulcerated plaques that are thicker, or that don't respond to other treatments.

### **WHAT IS THE EXPECTED RESULT?**

CTCL is highly radiosensitive, meaning that radiation therapy is very effective (with cure rates near 100%) for the lesions that are treated. Radiation therapy may be used alone for patients with single lesions of CTCL, but is often used in conjunction with other systemic treatments. Radiation treatments are usually administered in a divided or "fractionated" way, meaning that patients receive small doses on subsequent days to reduce the side effects and maximize the benefit. The effects of radiation therapy build up over time, and the full impact may not be seen until after the treatment is completed.

### **WHAT ARE COMMON SIDE EFFECTS?**

The following is not an exhaustive list of the possible side effects. Please discuss with your physician what you can expect.

Side effects of local radiation therapy are dependent on the dose of radiation used and, at very low doses, radiotherapy to the skin can have essentially no side effects. At higher doses, side effects can include erythema (redness), desquamation (peeling), atrophy (skin thinning), and skin dryness.

### **WHAT IS TOTAL SKIN ELECTRON BEAM THERAPY?**

Total skin electron beam (TSEBT) is a technique of delivering electron beam radiation to the entire skin surface, and is a very effective treatment for those with widespread lesions. Traditionally, higher doses of radiation were used; however, most centers now use low dose (12Gy TSEBT for CTCL with fewer side effects. Low-dose TSEBT is still very effective, with more than three quarters of patients getting a good response.

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## **ARE THERE SPECIAL CONSIDERATIONS TO BE AWARE OF?**

Patients are instructed throughout the course of TSEBT, and for a period of time thereafter, to keep the skin well-hydrated with moisturizers, apply UVA/UVB blocking sun screens, wear sunglasses, and consider photo-protective garments for outdoor exposures.

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Common side effects can include hair loss, nail loss, skin peeling, and itching.