CUTANEOUS LYMPHOMA FOUNDATION

PHOTOTHERAPY

Expert review and update by:
Cutaneous Lymphoma Foundation's Medical Advisory Council - June 2019

WHAT IS PHOTOTHERAPY?

Phototherapy, or Ultraviolet (UV) light therapy, is one of the most widely used skin-directed therapies for cutaneous T-cell lymphoma (CTCL). UVA and UVB are wavelengths of light found in natural sunlight, and are used for phototherapy. The mechanism of action for ultraviolet light therapy is broad, with effects produced on cell surface membrane proteins causing apoptosis (cell death). In general, UVB reaches the more superficial skin layer of the epidermis, while UVA penetrates deeper into the dermis.

Phototherapy is typically used when skin involvement is widespread and/or topical treatments have proven to be ineffective or impractical. Phototherapy can be used alone for early stage CTCL or in combination with other therapies. Both UVB and PUVA can be combined with medications to further boost the activity of the phototherapy like methotrexate or retinoids (such as acitretin or bexarotene).

HOW IS IT DELIVERED?

UVB Therapies
There are two types of UVB therapy: broadband UVB (an older form) and narrow band (nb)UVB, which is most frequently used currently. Both types of UVB therapies are carried out in dermatology practices equipped with specially calibrated "light boxes." UVB therapy does not require administration of an oral sensitizing agent in order to produce beneficial effects in the skin.

Patients are exposed to the UVB light in a graduated fashion at increased doses with treatments two to three days per week. It typically takes months to see initial improvement after starting phototherapy.The goal of therapy is clinical response with an eventual taper to a more manageable schedule of one day per week.

Psoralen and UVA (PUVA)
Psoralen and UVA (PUVA) phototherapy involves the combination of the photosensitizing agent 8-methoxypsoralen with UVA light. UVA radiation has a longer wavelength than UVB and can penetrate window glass and, likewise, can penetrate the larger and thicker lesions of CTCL.

Patients ingest the psoralen 1 ½ to 2 hours before exposure to the UVA light. Treatments are delivered two to three days per week initially until a maximal response is achieved. It can take several months to begin to see a response.

WHAT IS THE EXPECTED RESULT?

Phototherapy is an extremely effective treatment for cutaneous lymphoma. It has been reported having a 60-90% effectiveness rate, depending on the stage of lymphoma, thickness of lesions, and baseline skin color. Remissions have been documented with light therapy after completing a treatment course. Some remissions have been reported as lasting a year or more.

ARE THERE SPECIAL CONSIDERATIONS TO BE AWARE OF?

One of the major hindrances to phototherapy is the time requirements for visits, which may disrupt work or home life. In addition, access to a treatment center may be geographically challenging for patients who reside in rural or remote areas. Redness and burning can be problematic in certain fair complexioned individuals; therefore, patients should be assessed prior to each treatment.

WHAT ARE COMMON SIDE EFFECTS?

The following is not an exhaustive list of the possible side effects. For a complete list of possible side effects, please see the manufacturer's available information on the specific therapy.

UVB Therapies
Common side effects during phototherapy for CTCL include skin redness and pruritus (itching). Pruritus can be particularly bothersome right after starting phototherapy, especially during PUVA ("PUVA itch").

Psoralen and UVA (PUVA)
Common side effects of PUVA are sunburn, temporary increase in itching ("PUVA itch"), and sun damage (freckling). Some patients experience nausea from the psoralen. Over time, there may be an increased risk of skin cancer from PUVA therapy, but generally only after >250 treatments. Patients are expected to wear eye protection up to 24 hours following treatment because of the small but theoretical risk of cataract formation. Men should cover their genitals during PUVA treatment to reduce the risk of skin cancer forming.

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