

Understanding Lymphoma Cutaneous T-Cell Lymphoma

Cutaneous T-cell lymphoma (CTCL) is a general term for non-Hodgkin's T-cell lymphomas that primarily involve the skin.

There are many subtypes of CTCL, and the most common ones are mycosis fungoides (MF) and Sézary syndrome (SS). Other subtypes of CTCL are less frequent and include CD30-positive lymphoproliferative disorders and other subtypes. Some of these rare CTCL subtypes can be very aggressive. The skin symptoms, appearance and type of treatment used depend on the subtype of CTCL.

MF and SS can involve the blood, lymph nodes, and other internal organs. Symptoms can include dry skin, itching (which can be severe), a red rash, and enlarged lymph nodes. CTCL affects men more often than women and usually occurs in people in their 50s and 60s.



MOST COMMON SUBTYPES OF CTCL

Mycosis Fungoides (MF) is the most common subtype of CTCL, accounting for approximately half of all skin lymphomas. The majority of patients with MF experience only skin symptoms. Typically, MF is indolent (develops slowly) and early-stage disease may not ever progress to later stages in some patients. However, MF may progress more rapidly in other patients and spread to the lymph nodes, blood, and/or internal organs.

MF may look different in each patient, with skin symptoms that can appear as patches, plaques, tumors, or *erythroderma* (reddening of more than 80 percent of the skin). Patches usually are flat, possibly scaly, and look like a rash; plaques are thicker, raised, often itchy lesions that can be mistaken for eczema, psoriasis, or dermatitis; and tumors are raised bumps or nodules 1 cm or greater in diameter or height that may or may not ulcerate (become an open sore). It is possible to have more than one type of skin symptom. Patients with erythrodermic MF have diffuse scaly red skin eruptions that can be very itchy.

A medical history, physical examination, and skin biopsy are essential for diagnosis. A physician will examine lymph nodes, order various blood tests, and may conduct other screening tests, such as blood flow cytometry or a whole-body imaging study (such as a computed tomography [CT] or positron emission tomography [PET] scan).

MF is difficult to diagnose in its early stages because the symptoms and skin biopsy findings are similar to those of other skin conditions.

Sézary Syndrome (SS) is characterized by the presence of erythroderma, atypical T cells in the blood (Sézary cells), and often by enlarged lymph nodes. An extensive red, itchy rash typically appears on the skin, often with shedding of the superficial layer of the skin (exfoliation). Loss of temperature

control by the skin is common, and patients often feel cold. In certain patients, patches and tumors appear. Patients often experience severe itching and frequently have *Staphylococcus aureus* skin infections. The skin of the hands and feet can become extremely thick and cracked (keratoderma). Patients can also experience changes in their nails, hair, or eyelids. This form of CTCL tends to grow and spread faster than MF.

Many of the same procedures used to diagnose and stage other subtypes of CTCL are used in SS. In addition, blood flow cytometry is essential to diagnose and stage SS, and whole-body imaging often is needed to determine if the cancer has spread to the lymph nodes or other organs. These tests may include a CT scan, a PET scan, and/or magnetic resonance imaging (MRI). A bone marrow biopsy may also be performed but is not always necessary.



TREATMENTS OPTIONS

Once the diagnosis is made, patients undergo a staging work-up to assess the extent of their lymphoma, which determines the final clinical stage and prognosis. In CTCL, clinical stage refers to two distinct features of the disease: 1) how much disease is in the skin and what the pattern of growth is (path, plaque, or tumor), and 2) how much the disease has spread to other parts of the body. Stages I (A and B) and II (A and B) refer to disease that is limited to the skin with progressively greater skin involvement. Stage III refers to patients who have erythroderma but do not have significant blood involvement. Stage IV (A and B) refers to patients who have any amount of disease in the skin, and in addition have biopsy proven involvement of the lymph nodes and/or significant blood involvement. The bone marrow and additional organs may be

involved. Because it is a rare disease, CTCL management should be done at centers with expertise and experience in treating it or in close partnership with such centers. The patients' clinical stage is the primary factor for selecting the optimal treatment. Many other factors are also considered in identifying the most appropriate treatment for each patient, including the extent of skin involvement, the type of skin lesion, and whether the cancer involves the blood, lymph nodes, or other internal organs. The treatment is highly tailored for each patient and may be adjusted frequently depending on the treatment response and tolerability.

For MF, treatment is directed either at the skin (*topical* therapy) or at the entire body (*systemic* therapy). Many patients with early-stage MF live normal lives while their disease is being treated, and some are able to remain in remission (reduction or disappearance of the signs and symptoms) for long periods of time. However, the disease is not considered curable and follows a chronic course, with treatments adjusted to address symptoms when it is active. Patients with more advanced-stage MF often require systemic therapies at some point in their treatment course, and those with high-risk disease may receive an *allogeneic stem cell transplant* (patients receive stem cells from a family member or unrelated donor).

Since SS is systemic, a disease in which both blood and skin involvement is noted, it usually is not treated with skin-directed therapies alone. Treatments may be prescribed sequentially or in combination to achieve the best long-term benefit.

Skin-Directed Therapies generally are used for earlier-stage disease and typically are useful for symptoms that appear as patches and limited plaques. These therapies include topical corticosteroids, topical chemotherapy (for example, mechlorethamine [Valchlor]), topical retinoids like bexarotene (Targretin), or topical immunotherapy with imiquimod (Zyclara), local or total skin radiation therapy, and photodynamic therapy (with ultraviolet light). Bexarotene gel (Targretin) and mechlorethamine gel (Valchlor) have been approved by the U.S. Food and Drug Administration (FDA) as a topical treatment for Stages 1A and 1B MF in patients who have received previous skin treatment. However, the most frequently used skin-directed treatment is topical corticosteroids at different strengths for different parts of the body and severity of the skin disease.

Systemic treatment may be used in more advanced-stage disease and in patients with earlier-stage disease in whom skin-directed therapies did not help, were not tolerated, or are not available.

Systemic treatments include:

- Biologic therapy with interferon alpha or gamma, alone or in combination with skin-directed therapy
- Chemotherapy with methotrexate, pegylated liposomal doxorubicin, fludarabine, 2-chlorodeoxyadenosine, pentostatin, chlorambucil or folate analogues (Folotyn)
- Targeted therapies with brentuximab vedotin (Adcetris) or mogamulizumab (Poteligeo)
- Oral retinoids like bexarotene (Targretin)
- Histone deacetylase (HDAC) inhibitors like vorinostat (Zolinza) or romidepsin (Istodax)
- Extracorporeal photopheresis, where the blood of the patient is removed and the white blood cells are isolated, exposed to UV radiation and returned to the patient.

Combination chemotherapy regimens are reserved for those with refractory (does not respond to treatment) or advanced disease or who have severe/extensive extracutaneous involvement. Some of the systemic therapies can be combined to improve the response. Patients also often use skin-directed treatments in conjunction with systemic therapies.



TREATMENTS UNDER INVESTIGATION

Many treatments at various stages of drug development currently are being tested in clinical trials and for various stages of CTCL, including lenalidomide (Revlimid), pembrolizumab (Keytruda), nivolumab (Opdivo), atelolizumab (Tecentriq), resminostat (4SC-201, RAS2410), ASTX660, an anti-KIR3DL2 monoclonal antibody (IPH4102 or lacutamab), an anti-CD30 and CD16A bispecific antibody (AFM13), and others.

It is critical to remember that today's scientific research is continuously evolving. Treatment options may change as new treatments are discovered and current treatments are improved. Therefore, it is important that patients check with their physician or with the Lymphoma Research Foundation (LRF) for any treatment updates that may have recently emerged.



CLINICAL TRIALS

Clinical trials are crucial in identifying effective drugs and determining optimal doses for patients with lymphoma. Patients interested in participating in a clinical trial should view the Understanding *Clinical Trials* fact sheet on LRF's website (visit lymphoma.org/publications), and the *Clinical Trials Search Request Form* at lymphoma.org, talk to their physician, or contact the LRF Helpline for an individualized clinical trial search by calling **(800) 500-9976** or emailing helpline@lymphoma.org.



FOLLOW-UP

Patients with lymphoma should have regular visits with a physician who is familiar with their medical history and the treatments they have received. Medical tests (such as blood tests, CT scans, and PET scans) may be required at various times during remission (disappearance of signs and symptoms) to evaluate the need for additional treatment.

Some treatments can cause long-term side effects or late side effects, which can vary based on the duration and frequency of treatments, age, gender, and the overall health of each patient at the time of treatment. A physician will check for these side effects during follow-up care. Visits may become less frequent the longer the disease remains in remission.

Patients and their caregivers are encouraged to keep copies of all medical records and test results as well as information on the types, amounts, and duration of all treatments received. This documentation will be important for keeping track of any side effects resulting from treatment or potential disease recurrences. LRF's award-winning *Focus On Lymphoma* mobile app (lymphoma.org/mobileapp) can help patients manage this documentation.

LRF'S HELPLINE AND LYMPHOMA SUPPORT NETWORK

A lymphoma diagnosis often triggers a range of feelings and concerns. In addition, cancer treatment can cause physical discomfort. The LRF Helpline staff members are available to answer your general questions about a lymphoma diagnosis and treatment information, as well as provide individual support and referrals to you and your loved ones. Callers may request the services of a language interpreter. A part of the Helpline is LRF's one-to-one peer support programs, Lymphoma Support Network. This program connects patients and caregivers with volunteers who have experience with CTCL, similar treatments, or challenges, for mutual emotional support and encouragement. Patients and loved ones may find this useful whether the patient is newly diagnosed, in treatment, or in remission.

MOBILE APP

Focus On Lymphoma is the first mobile application (app) that provides patients and caregivers comprehensive content based on their lymphoma subtype, including CTCL, and tools to help manage their lymphoma such as, keep track of medications and blood work, track symptoms, and document treatment side effects. The *Focus On Lymphoma* mobile app is available for download for iOS and Android devices in the Apple App Store and Google Play. To learn more about any of these resources, visit our website at lymphoma.org, or contact the LRF Helpline at **(800) 500-9976** or helpline@lymphoma.org.

LYMPHOMA CARE PLAN

Keeping your information in one location can help you feel more organized and in control. This also makes it easier to find information pertaining to your care and saves valuable time. LRF offers a Lymphoma Care Plan as a resource for patients and their caregivers. LRF's Lymphoma Care Plan document organizes information on your health care team, treatment regimen, and follow-up care. You can also keep track of health screenings and any symptoms you experience to discuss with your health care provider during future appointments. The Lymphoma Care Plan document can be accessed by visiting lymphoma.org/publications.

Resources

LRF offers a wide range of free resources that address treatment options, the latest research advances, and ways to cope with all aspects of lymphoma and CTCL. LRF also provides many educational activities, including our in-person meetings, and webinars for people with lymphoma. For more information about any of these resources, visit our websites at lymphoma.org/CTCL or lymphoma.org, or contact the LRF Helpline at **(800) 500-9976** or helpline@lymphoma.org.

Para información en Español, por favor visite lymphoma.org/es. (For Information in Spanish please visit lymphoma.org/es.)

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Supported through grants from:     

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Last updated 2022

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