LYMPHOMA
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Getting the Facts

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Follicular Lymphoma

Overview

Lymphoma is the most common blood cancer. The two main forms of lymphoma are Hodgkin lymphoma (HL) and non-Hodgkin lymphoma (NHL). Lymphoma occurs when cells of the immune system called lymphocytes, a type of white blood cell, grow and multiply uncontrollably. Cancerous lymphocytes can travel to many parts of the body, including the lymph nodes, spleen, bone marrow, blood, or other organs, and form a mass called a tumor. The body has two main types of lymphocytes that can develop into lymphomas: B lymphocytes (B cells) and T lymphocytes (T cells).

Follicular lymphoma (FL) is the most common *indolent* (slow- growing) form of NHL, accounting for approximately 12 percent of all B-cell NHLs. Common symptoms of FL include enlargement of the lymph nodes in the neck, underarms, abdomen, or groin, as well as fatigue, shortness of breath, night sweats, and weight loss. Often, patients with FL have no obvious symptoms of the disease at diagnosis.

Over time, some patients with FL may eventually develop a transformed lymphoma, which is often more aggressive and usually requires more intensive types of treatment. For more information on transformed lymphomas, view the *Transformed Lymphomas* fact sheet on the Lymphoma Research Foundation's (LRF) website at www.lymphoma.org.

Treatment Options

There are various treatment options for FL based on the severity of associated symptoms and the rate of cancer growth. If patients show no or very few symptoms, physicians may recommend not to treat the disease right away, an approach referred to as "watchful waiting" or "observation." Studies have shown that patients who are managed with a watchful waiting approach have survival outcomes similar to those who are treated early in the course of their disease. With this strategy, patients' overall health and disease are monitored through regular checkup visits and various evaluations, such as laboratory and imaging tests. Active treatment is started if the patient begins to develop lymphoma-related symptoms or there are signs that the disease is progressing based on testing during follow-up visits.

FL is generally very responsive to radiation and chemotherapy. Radiation alone can provide a long-lasting remission in some patients with limited disease. In more advanced stages, physicians may use one or more chemotherapy drugs or the monoclonal antibody rituximab (Rituxan), alone or in combination with other agents. Monoclonal antibodies can act more directly than chemotherapy agents by targeting particular markers found on tumor cells and recruiting immune cells to promote tumor destruction, which can increase response to treatment. Common combination regimens include:

- R-Bendamustine (rituximab and bendamustine)
- R-CHOP (rituximab, cyclophosphamide, doxorubicin, vincristine, and prednisone)
- R-CVP (rituximab, cyclophosphamide, vincristine, and prednisone)

Some monoclonal antibodies can also be used as maintenance therapy for up to two years to prolong remission for patients with no signs of lymphoma.

Another treatment sometimes used for FL is radioimmunotherapy (RIT) using an agent such as yttrium-90 ibritumomab tiuxetan (Zevalin), which is a radioactive particle connected to an antibody that targets cancer cells. To learn more about RIT, view the *Radioimmunotherapy* fact sheet on LRF's website at www.lymphoma.org.

After treatment, many patients can go into a remission that lasts for years; however, this disease should be considered a lifelong condition. Thus *relapse* (returns after treatment) and in some cases *refractory* (does not respond to treatment) disease can occur. For patients with relapsed FL, the same management choices as listed above may be utilized, or additional therapies may be successful in providing another remission. For more information on relapsed and refractory FL, view the *Follicular Lymphoma: Relapsed/Refractory* fact sheet on LRF's website at www.lymphoma.org.

For some patients with relapsed FL, high-dose chemotherapy followed by stem cell transplantation may be an option. For more information on transplantation, view the *Understanding the Stem Cell Transplantation Process* booklet on LRF's website at www.lymphoma.org.

Treatments Under Investigation

Many treatments are currently being tested in clinical trials for patients who are newly diagnosed or have relapsed/refractory FL. For patients who have not previously received treatment for FL, therapies under investigation include various combinations of several agents: rituximab, lenalidomide (Revlimid), bendamustine (Treanda), ofatumumab (Arzerra), bortezomib (Velcade), ibrutinib (Imbruvica),

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duvelisib, TGR1202, obinutuzumab (Gazyva), atezolizumab (Tecentriq), and pembrolizumab (Keytruda). Other combinations of treatment modalities, including immunochemotherapy, radioimmunotherapy, and stem cell transplantation are also under investigation and may help patients achieve prolonged remission. 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 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 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

Since FL is generally characterized by multiple disease relapses after responses to a variety of treatments, patients in remission 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 and computed tomography [CT] or positron emission tomography [PET] scans, and biopsies of suspicious masses or the pelvic bone marrow) may be required at various times during remission to evaluate the need for additional treatment.

Some treatments can cause long-term effects or late effects, which can vary based on 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 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 effects resulting from treatment or potential disease recurrences.

Support

A lymphoma diagnosis often triggers a range of feelings and concerns. In addition, cancer treatment can cause physical discomfort. One-to-one peer support programs, such as LRF's Lymphoma Support Network, connects patients and caregivers with volunteers that have experience with FL, similar treatments, or challenges, for mutual emotional support and encouragement. You may find this useful whether you or a loved one is newly diagnosed, in treatment, or in remission.

Resources

LRF offers a wide range of resources that address treatment options, the latest research advances, and ways to cope with all aspects of lymphoma and FL, including our award-winning mobile app, *Focus On Lymphoma*. LRF also provides many educational activities, from in-person meetings to teleconferences and webcasts for people with follicular lymphoma, as well as FL e-Updates that provide the latest disease-specific news and treatment options. For more information about any of these resources, visit our websites at www.FocusOnFL.org or www.lymphoma.org, or contact the LRF Helpline at (800) 500-9976 or helpline@lymphoma.org.