Understanding the Diagnosis and Treatment for Large B Cell Lymphoma (LBCL):

A Guide for Patients and Caregivers

DIAGNOSIS

The Diagnostic Process for Large B Cell Lymphoma (LBCL)

Receiving a diagnosis of Large B Cell Lymphoma (LBCL) can feel overwhelming, but understanding the steps involved in the diagnostic process can help ease some of the anxiety. This guide explains the various tests and procedures that doctors use to accurately diagnose LBCL and create a personalized treatment plan.

LBCL is a type of non-Hodgkin lymphoma (NHL) that begins in B lymphocytes, a type of white blood cell that plays an important role in the immune system. Diagnosing LBCL involves several steps, including a physical exam, imaging tests, biopsies, and specialized laboratory tests that help determine the type and stage of lymphoma. Each step provides important information to guide treatment decisions.

01

Recognizing the Symptoms

Many patients with LBCL first seek medical help because of symptoms that are often associated with lymphoma. While symptoms can vary, some of the most common include:

- **Painless swelling of lymph nodes:** This is one of the hallmark symptoms of lymphoma. Enlarged lymph nodes in the neck, armpit, or groin are often noticed first.
- **Fever:** An unexplained, persistent fever can be a sign of lymphoma.
- **Night sweats:** Profuse sweating during sleep that may require changing bed sheets or clothing.
- **Unexplained weight loss:** Losing more than 10% of your body weight without trying over 6 months can indicate a more aggressive form of lymphoma.
- **Fatigue:** Feeling unusually tired, even with enough rest, is common in many types of cancer.
- **Loss of appetite:** This may accompany weight loss.
- **Itching:** Some patients experience itchy skin.
- **Pain or discomfort:** Some patients experience discomfort or pain in the chest, abdomen, or bones, depending on where the lymphoma is located.

Once these symptoms are identified, **the diagnostic process begins.**

02

The Diagnostic Process: Step-by-Step

The process of diagnosing LBCL involves several steps, from the initial physical exam to advanced laboratory testing that identifies the specific type of lymphoma. Each step plays a critical role in understanding the nature of the disease.

Medical History and Physical Examination

During your first visit, your doctor will:

- Take a detailed medical history, asking about your symptoms, how long you've experienced them, and any family history of cancer or immune-related conditions.
- Perform a physical examination, which will include checking for swollen lymph nodes in areas such as the neck, underarms, and groin. The doctor may also examine the liver and spleen to check for swelling, as lymphoma can sometimes affect these organs.

  This initial exam helps determine whether further testing is needed and guides the doctor's decisions about which tests to order.

Imaging Tests

Imaging tests are used to help identify the location and extent of the lymphoma. The most common imaging tests for LBCL include:

- **Computed Tomography (CT) Scan:** A CT scan provides detailed cross-sectional images of the body. It helps identify enlarged lymph nodes and whether the lymphoma has spread to other areas, such as the liver, spleen, or lungs.
- **Positron Emission Tomography (PET) Scan:** A PET scan is often used in combination with a CT scan to get a more detailed picture of cancer activity. In a PET scan, a small amount of radioactive glucose is injected into the bloodstream. Since cancer cells use more glucose than normal cells, areas of lymphoma will "light up" on the scan.
- **Magnetic Resonance Imaging (MRI):** An MRI scan uses magnetic fields to produce detailed images, especially of the brain, spine, or other specific areas where lymphoma might be present.
- **Ultrasound:** This test may be used to examine specific organs, like the liver or spleen, that might be affected by lymphoma.

Biopsy: The Key to Diagnosis

A biopsy is the most crucial step in diagnosing LBCL. During a biopsy, a sample of tissue is taken from an affected lymph node or other area and analyzed in a laboratory. There are different types of biopsies, including:

- **Excisional or Incisional Biopsy:** This is the preferred method for diagnosing lymphoma. In an excisional biopsy, the doctor removes an entire lymph node for analysis. In an incisional biopsy, only a portion of a lymph node or mass is removed.
- **Core Needle Biopsy:** A less invasive method where a needle is used to take a sample of tissue from the affected area. While it can provide useful information, a core needle biopsy may not always provide enough tissue to make a definitive diagnosis.
- **Fine Needle Aspiration (FNA):** A very thin needle is used to remove a small sample of cells from the lymph node or mass. FNA is less invasive but often does not provide enough information to diagnose lymphoma.

After the tissue is collected, it is sent to a laboratory where pathologists examine it under a microscope.

Laboratory Testing on Biopsy Samples

Once a biopsy sample is obtained, it undergoes several laboratory tests to determine the exact type of lymphoma and how it may behave. These tests include:

- **Histopathology:** A pathologist will examine the tissue under a microscope to look for the large, abnormal B cells characteristic of LBCL.
- **Immunohistochemistry:** This test uses antibodies to detect specific proteins on the surface of lymphoma cells. For LBCL, the pathologist will look for proteins like CD20, which are markers of B-cell origin. These results help confirm the diagnosis and may guide treatment decisions (eg, whether the lymphoma is CD20- positive, which is necessary for treatments like rituximab).
- **Flow Cytometry:** Flow cytometry is a lab test that looks at the physical and chemical properties of cells in the biopsy sample. It can help determine whether the abnormal cells are B cells or T cells, and whether they are behaving like cancerous cells.
- **Cytogenetic Testing (FISH and Karyotyping):** These tests look for specific genetic abnormalities in the lymphoma cells. One common genetic test for LBCL is fluorescence in situ hybridization (FISH), which can detect changes in certain genes, such as MYC, BCL2, and BCL6. These genetic changes can indicate how aggressive the lymphoma is and help determine the best treatment approach.
- **Molecular Testing (PCR):** This test looks for specific gene mutations or rearrangements in the lymphoma cells that can also influence treatment decisions.

Blood Tests

Blood tests provide important information about how the lymphoma is affecting your overall health and can give clues about its severity. Common blood tests include:

- **Complete Blood Count (CBC):** This test measures the levels of red blood cells, white blood cells, and platelets. LBCL can cause abnormalities, such as low white blood cell counts (leukopenia) or anemia.
- **Lactate Dehydrogenase (LDH):** LDH is an enzyme found in the blood, and high levels can indicate more aggressive lymphoma. LDH is often elevated in patients with LBCL and may help doctors gauge how active the disease is.
- **Blood Chemistry Panel:** This test measures electrolytes, liver and kidney function, and other key indicators of how well your organs are working.

Bone Marrow Biopsy (if needed)

In some cases, your doctor may recommend a bone marrow biopsy to check whether the lymphoma has spread to the bone marrow. During this procedure, a small sample of bone marrow (usually from the hip) is taken and examined under a microscope. This test helps determine the stage of the lymphoma and can influence the treatment plan.

Understanding Staging for Large B Cell Lymphoma (LBCL):

When diagnosed with Large B Cell Lymphoma (LBCL), one of the first steps in planning treatment is determining the stage of the disease. Staging helps your healthcare team understand how far the cancer has spread and which treatment plan may work best for you. This guide will explain the staging process in clear terms, so you can feel informed and confident as you move forward.

What Is Cancer Staging?

Staging is the process of figuring out how much cancer is in your body and where it is located. For lymphomas like LBCL, staging looks at how many lymph nodes or organs are affected and whether the disease has spread beyond the lymphatic system to other parts of the body.

The stages of LBCL range from Stage I (localized) to Stage IV (widespread). Staging typically involves physical exams, imaging scans, blood tests, and sometimes bone marrow biopsies. Each stage provides information about how advanced the lymphoma is, helping doctors choose the most appropriate treatment.

The Four Stages of Large B Cell Lymphoma

STAGE 01

Localized Lymphoma

- **What it means:** The lymphoma is in one area.

- **Stage I:** The lymphoma is in a single lymph node group, such as the neck, armpit, or groin.
- **Stage IE:** The lymphoma is in one organ or area outside the lymphatic system (called "extralymphatic") but not in any lymph nodes. For example, the lymphoma might be in the stomach, liver, or another organ.
- ***Example:*** A patient with swollen lymph nodes in just the neck area, and no other symptoms, would be in Stage I.

STAGE 02

Locally Advanced Lymphoma

- **What it means:** The lymphoma has spread to two or more lymph node areas, but only on either the upper or lower side of the diaphragm (the muscle that separates your chest and abdomen).

- **Stage II:** Lymph nodes are affected in two or more groups on the same side of the diaphragm, such as in the neck and underarm, but not in the lower body.
- **Stage IIE:** The lymphoma is in nearby lymph nodes and has spread to one organ or area outside the lymphatic system (but still only on one side of the diaphragm).
- ***Example:*** A patient has lymphoma in lymph nodes under the arm and in the chest but no involvement in the abdomen or lower body.

STAGE 03

Advanced Lymphoma

- **What it means:** The lymphoma is in lymph node areas on both sides of the diaphragm (in both the chest and the abdomen).

- Lymph nodes above and below the diaphragm are affected, but there is no widespread involvement of other organs outside of the lymphatic system.
- ***Example:*** A patient has affected lymph nodes in the neck (above the diaphragm) and in the abdomen or groin (below the diaphragm).

STAGE 04

Widespread Lymphoma

- **What it means:** The lymphoma has spread widely to lymph nodes and to one or more organs outside the lymphatic system, such as the liver, bone marrow, lungs, or bones.

- This is the most advanced stage of lymphoma, but many patients can still respond well to treatment.
- ***Example:*** Lymphoma has spread to multiple lymph nodes throughout the body, and cancerous cells are found in the bone marrow or liver.

Additional Factors in Staging: A, B, and E Classifications

In addition to the number and location of affected lymph nodes or organs, LBCL staging also includes some letters that give more detail about the patient's symptoms and the location of the disease.

A or B

Classification (Symtoms)

- **A:** No "B symptoms" are present. B symptoms refer to specific signs of lymphoma progression.
- **B:** The patient has one or more of the following symptoms:

  Fever: Unexplained fever above 38°C (100.4°F).

  Night sweats: Heavy sweating during the night that requires changing clothes or bed sheets.

  Weight loss: Unexplained weight loss of more than 10% of body weight over 6 months.

These symptoms can indicate a more aggressive form of the disease and may affect the treatment approach.

E

Classification (Extralymphatic Spread)

- **E:** The lymphoma has spread to an organ or tissue outside of the lymph nodes but is still close to the affected lymph node group.
- ***Example:*** If lymphoma has spread to the stomach or lungs in addition to the nearby lymph nodes, it is classified as "E" for extralymphatic involvement.

How Is Staging Done?

Staging is determined through a combination of tests and procedures. Here's how your medical team will assess the stage of your lymphoma:

- **Physical Examination:** The doctor will check for swollen lymph nodes, an enlarged spleen, or liver, which can be signs of lymphoma spread.
- **Imaging Tests:** Scans like CT (computed tomography) or PET (positron emission tomography) scans help to identify areas of lymphoma in the lymph nodes and other organs. A PET scan is particularly useful for seeing how active the cancer is.
- **Blood Tests:** These tests can show the overall health of your organs and reveal elevated levels of certain enzymes (like lactate dehydrogenase, or LDH) that might indicate more advanced disease.
- **Bone Marrow Biopsy:** If your doctor suspects that lymphoma has spread to your bone marrow (common in Stage IV), they may take a small sample of bone marrow from your hip bone to examine under a microscope.

Why Is Staging Important?

Staging is crucial because it helps your healthcare team design the best treatment plan. Early-stage LBCL (Stages I and II) is usually treated differently from more advanced stages (Stages III and IV). The treatment might be shorter, and fewer aggressive therapies might be used in early stages.

For advanced-stage lymphoma, doctors may recommend more intensive treatments, such as chemotherapy and immunotherapy, sometimes combined with radiation or other therapies.

Prognostic Scores (IPI): Another Important Factor

In addition to staging, your doctor will calculate a prognostic score called the International Prognostic Index (IPI), which considers additional factors that may influence your treatment plan and outlook:

- **Age:** Patients over 60 may have a different risk profile.
- **Stage:** Higher stages may be more aggressive.
- **LDH levels:** High levels of this enzyme can indicate fast-growing lymphoma.
- **Performance status:** This refers to how well you can carry out daily activities.
- **Number of extranodal sites:** This is the number of organs outside the lymph nodes that are affected.

Conclusion

Understanding the stage of your Large B Cell Lymphoma is essential for you and your caregivers to make informed decisions about your treatment. Remember, even advanced stages of lymphoma can respond well to treatment, and your medical team will work closely with you to choose the most effective therapy based on your stage, symptoms, and overall health.

If you have questions or need clarification about your stage, don't hesitate to ask your healthcare team. They are there to help you every step of the way through your lymphoma journey.

Understanding Treatment for Large B Cell Lymphoma (LBCL)

Large B Cell Lymphoma (LBCL) is a type of non-Hodgkin lymphoma that can be aggressive but is often treatable, especially with modern therapies. Treatment choices depend on several factors, such as the stage of the lymphoma, the patient's overall health, and the specific characteristics of the lymphoma cells. This guide is designed to help patients and caregivers understand the treatment options, what to expect during the treatment process, and how to manage side effects and recovery.

Goals of Treatment

The primary goal of LBCL treatment is to eliminate the cancer and achieve remission (a state where no cancer cells can be detected). In some cases, patients can be cured, while others may have long-term remission with careful management. Even in advanced cases, treatments can often shrink the cancer, reduce symptoms, and improve quality of life.

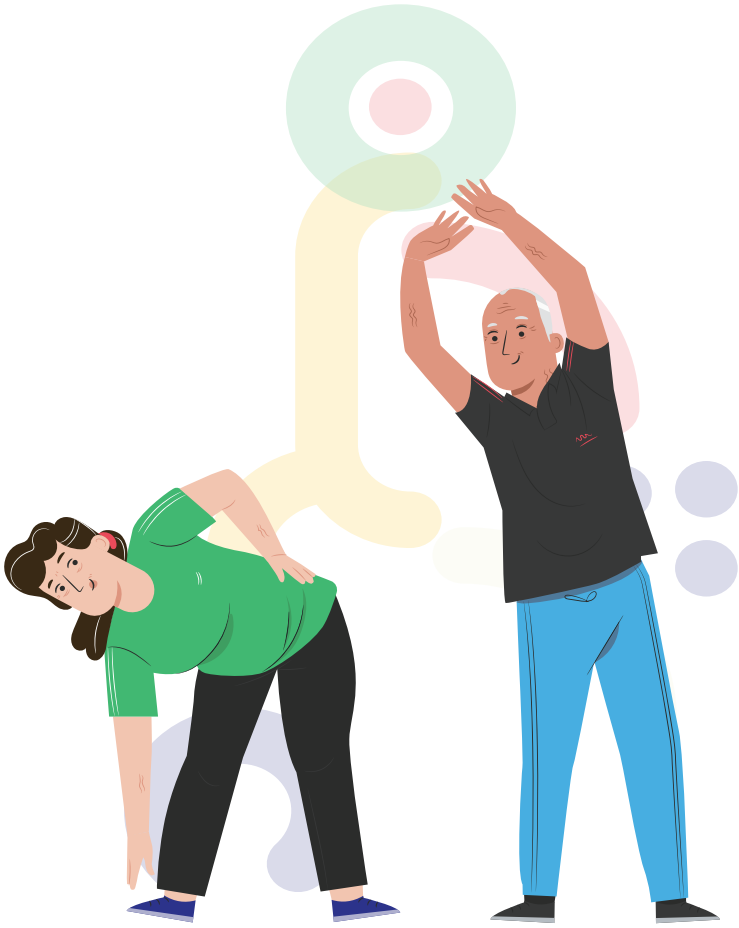
01

Treatment Overview

LBCL is typically treated with a combination of therapies. The main treatments include:

- **Chemotherapy:** Medications that kill cancer cells.
- **Immunotherapy:** Treatments that help the immune system target lymphoma cells.
- **Radiation therapy:** High-energy rays to kill cancer cells in localized areas.
- **Targeted therapy:** Drugs that target specific characteristics of cancer cells.
- **Stem cell transplant:** A procedure that allows for high-dose chemotherapy followed by the return of healthy stem cells.

Each patient's treatment plan is personalized based on their specific situation.



02
First-Line Treatment

First-line treatment refers to the initial therapy given after diagnosis. For most patients with LBCL, a combination of chemotherapy and immunotherapy is used.

R-CHOP Chemotherapy

The most common treatment for LBCL is a regimen called R-CHOP, which stands for:

- **Rituximab (R):** A monoclonal antibody that targets a protein called CD20 found on B cells. It helps the immune system identify and destroy lymphoma cells.
- **Cyclophosphamide (C):** A chemotherapy drug that kills rapidly dividing cells, including cancer cells.
- **Doxorubicin (H):** A chemotherapy drug that interferes with the DNA inside cancer cells, stopping them from growing.
- **Vincristine (O):** A chemotherapy drug that stops cells from dividing.
- **Prednisone (P):** A steroid that helps reduce inflammation and improve the effectiveness of chemotherapy.

How R-CHOP is given:

R-CHOP is given in cycles, usually every 21 days. The number of cycles depends on the stage of the lymphoma and the patient's response to treatment (typically 4-6 cycles).

Each cycle involves an intravenous (IV) infusion of the drugs, followed by a rest period where the body recovers.

Common side effects of R-CHOP:

- Fatigue
- Hair loss
- Nausea and vomiting
- Increased risk of infection (due to lowered white blood cells)
- Mouth sores
- Constipation or diarrhea

Your healthcare team will closely monitor these side effects and provide medications to manage them, such as anti-nausea drugs and treatments to boost white blood cell counts.

Radiation Therapy

Radiation therapy may be used in combination with chemotherapy, especially for localized LBCL (Stage I or II), where the cancer is confined to one part of the body. Radiation targets specific areas of lymphoma to destroy cancer cells that chemotherapy may not fully eliminate.

Radiation therapy is often used after completing chemotherapy or during treatment for certain patients with bulky disease (large tumors).

Refractory Disease and Treatment

Sometimes Large B Cell Lymphoma (LBCL) does not respond to initial treatment, which is called "refractory disease".

In cases where LBCL is more advanced (Stage III or IV), or if the lymphoma returns after treatment, additional therapies may be considered. See page 18 of this guide for an in-depth discussion.

03
Managing Side Effects

Treatments for LBCL can cause side effects, but there are many ways to manage them. Here are some common side effects and strategies for coping with them:

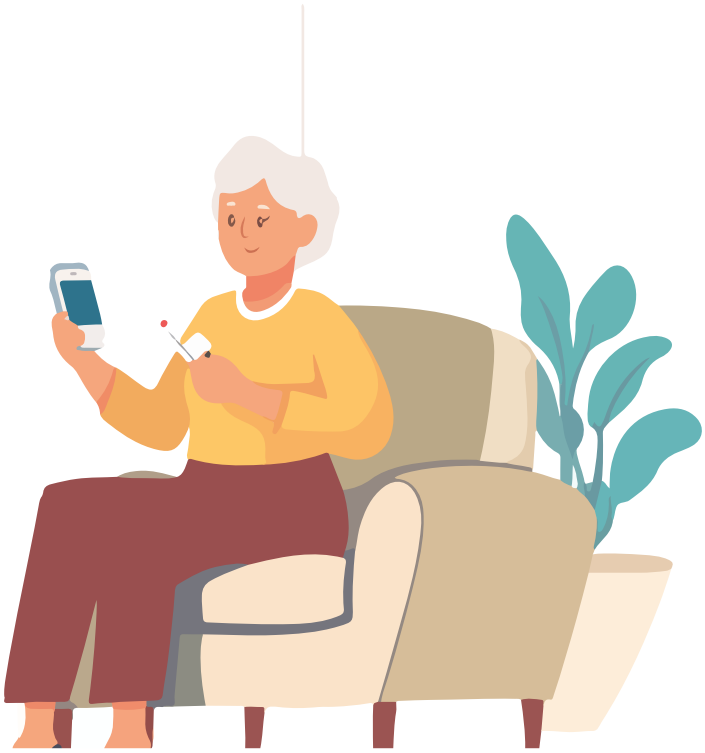
- **Fatigue:** This is a common side effect of chemotherapy. Rest is important, but gentle exercise, such as walking, may help boost energy.
- **Nausea and vomiting:** Anti-nausea medications are routinely given with chemotherapy. Eating small, frequent meals and staying hydrated can help.
- **Hair loss:** Hair usually grows back after chemotherapy, but you might want to prepare by cutting your hair short or using scarves and wigs.
- **Low blood counts:** Chemotherapy can lower your white blood cell count, increasing the risk of infection. Your doctor may prescribe medications to help boost your white cell count. It's important to avoid large crowds and practice good hygiene to reduce the risk of infection.
- **Neuropathy:** Some chemotherapy drugs, like vincristine, can cause numbness or tingling in your hands and feet. Let your doctor know if this happens, as the dose may need to be adjusted.

Your healthcare team will work closely with you to monitor side effects and make adjustments to keep you as comfortable as possible during treatment.

04
Follow-up Care

After completing treatment, follow-up care is crucial to monitor for any signs of recurrence and to manage long-term side effects. Follow-up usually includes:

- **Regular checkups:** These appointments may occur every 3-6 months initially, and less frequently over time if no signs of lymphoma are found.
- **Blood tests:** To check for any signs of lymphoma or monitor organ function after treatment.
- **Imaging scans:** Such as CT or PET scans, to ensure the lymphoma has not returned.
- **Managing late effects:** Some treatments, particularly chemotherapy, can have long-term effects on your health (eg, heart or lung issues). Your doctor will monitor these risks and provide treatments if necessary.



05

Emotional and Practical Support

A diagnosis of LBCL can be overwhelming, both for patients and caregivers. It's important to seek out emotional support during this journey:

- **Support groups:** Many hospitals and cancer centers offer support groups for patients and families. Talking to others who have gone through similar experiences can help you feel less alone.
- **Counseling and therapy:** Professional therapists who specialize in cancer care can help patients and caregivers cope with anxiety, fear, and other emotions.
- **Financial assistance:** Cancer treatment can be expensive. Many organizations provide financial aid or help with insurance paperwork.

Conclusion

While Large B Cell Lymphoma can be aggressive, many patients respond well to treatment, and there are numerous options available, even if the lymphoma comes back. Understanding your treatment plan, staying informed about new therapies, and working closely with your healthcare team are essential to achieving the best possible outcome.

> Chemotherapy was tough, but I tried to focus on the fact that it was working. I lost my hair, I was exhausted, but every time I went in for a scan and saw the tumors shrinking, it gave me the strength to keep going.
>
> **Sarah J, Age 58**
> **Lymphoma Patient**

> The treatment felt like a marathon. Some days my loved one was so tired, I wasn't sure how they would keep going. But we took it one step at a time. Each small victory, like seeing their blood counts improve, kept us moving forward.
>
> **Lymphoma Caregiver**

Post-Treatment Monitoring and Followup for Large B Cell Lymphoma (LBCL)

After completing treatment for Large B Cell Lymphoma (LBCL), whether chemotherapy, immunotherapy, or another type of therapy, it's essential to continue monitoring your health through regular follow-up care. This stage of your lymphoma journey focuses on keeping an eye out for recurrence, managing side effects, and maintaining your overall health and well-being.

This guide outlines what to expect during the post-treatment phase and how to approach monitoring and follow-up with your healthcare team.

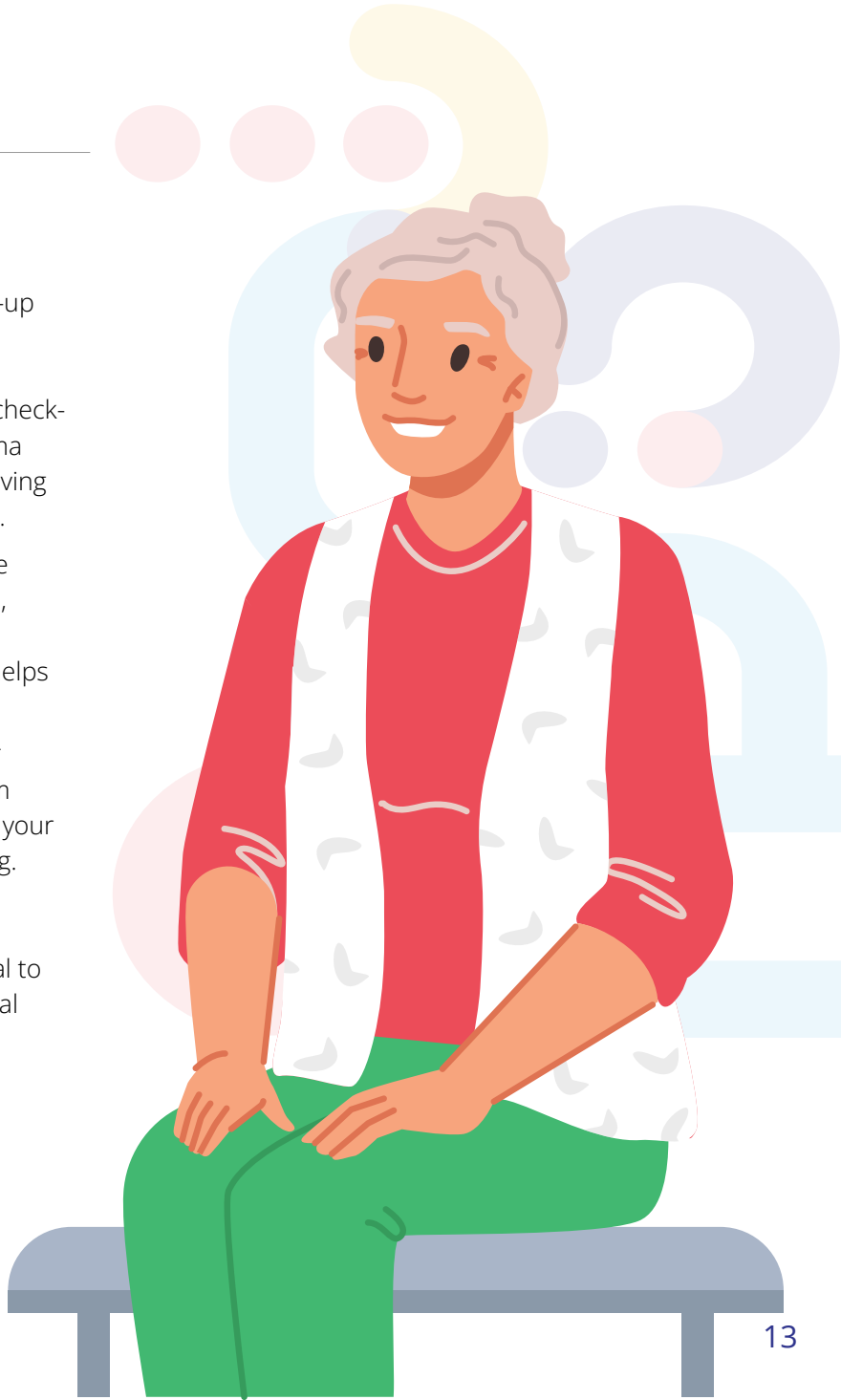
01

The Purpose of Post-Treatment Monitoring

Once your active treatment ends, follow-up care helps ensure:

- **Detection of Recurrence:** Regular check-ups help catch any signs of lymphoma returning as early as possible, improving the chances of successful treatment.
- **Management of Side Effects:** Some side effects of treatment, like fatigue, neuropathy, or heart issues, may continue after therapy. Monitoring helps manage these long-term effects.
- **Overall Health Monitoring:** Cancer treatment can impact your long-term health, and your doctor will monitor your organ function and general wellbeing.

Even though finishing treatment is a significant milestone, ongoing care is vital to staying healthy and catching any potential problems early.



02

What to Expect During Follow-up Care

Follow-up Schedule

After completing treatment for LBCL, your healthcare team will design a follow-up plan tailored to your situation. The frequency of visits depends on factors like:

- The stage of your lymphoma at diagnosis.
- Your response to treatment.
- Any ongoing symptoms or side effects.
- A typical follow-up schedule may look like this:

  First 2 Years After Treatment: Follow-up visits every 3 to 6 months.

  Years 3 to 5: Follow-up visits every 6 months.

  After 5 Years: Annual check-ups, or as advised by your doctor.

These appointments will gradually become less frequent if no signs of lymphoma are detected over time.

What Happens at Follow-up Visits

At each follow-up visit, here is what you can expect:

- **Detailed medical history:** Your doctor will ask about any new symptoms or concerns you've noticed since your last visit.
- **Physical examination:** Your doctor will check for signs of swollen lymph nodes or other physical changes.
- **Blood tests:** These can help monitor your overall health and detect potential changes that might signal a recurrence, such as changes in blood cell counts or elevated levels of certain proteins like lactate dehydrogenase (LDH).
- **Imaging tests:** Depending on your specific case, imaging studies like CT scans or PET scans may be performed periodically. These scans help detect any abnormal growths or areas of lymphoma that may have returned.

Imaging Scans: How Often Are They Needed?

Your doctor may recommend scans less frequently as time passes without evidence of disease. However, if you're feeling well and your tests are normal, you may not need as many scans after the first few years. Routine imaging is controversial in some cases, as excessive scanning may not significantly improve outcomes once remission is achieved, but this decision depends on individual risk factors.

Always report any new or unusual symptoms between appointments, as scans may be needed if something concerning arises.

03

Monitoring for Recurrence

In cases where LBCL is more advanced (Stage III or IV), or if the lymphoma returns after treatment, additional therapies may be considered. These include salvage chemotherapy, CAR T-cell therapy, and stem cell transplantation.

Recognizing the Signs of Recurrence

Even after treatment, LBCL can come back (relapse). This is why ongoing monitoring is essential. Here are some symptoms that may signal a recurrence:

- **New or enlarged lymph nodes:** Swollen lymph nodes that don't go away could be a sign of lymphoma coming back.
- **Night sweats:** Drenching sweats that require changing clothes or bedding.
- **Unexplained weight loss:** Losing more than 10% of your body weight without trying over a 6-month period.
- **Persistent fatigue:** Feeling unusually tired or weak without a clear cause.
- **Fever:** An unexplained fever that doesn't resolve or keeps returning.
- **Pain:** Any new pain or discomfort in areas like the abdomen, chest, or bones.

It's important to promptly report any of these symptoms to your doctor, as they might warrant further testing or imaging.

What Happens If LBCL Recurs?

If LBCL comes back, it doesn't mean the end of your treatment options. Your doctor will assess the situation and discuss the best treatment approach based on your specific case. Treatment for relapsed or refractory LBCL may include:

- Salvage chemotherapy
- CAR T-cell therapy
- Autologous stem cell transplant
- New targeted therapies or participation in clinical trials

Many patients successfully manage relapsed lymphoma with these options, and your healthcare team will work closely with you to create the best treatment plan.

04
Managing Long-Term and Late Side Effects

Some side effects of LBCL treatment may last beyond the active treatment phase or appear months or years later. It's important to recognize and manage these potential late effects.

Common Long-Term Side Effects

- **Fatigue:** Chemotherapy, radiation, or immunotherapy can leave lasting fatigue. It's crucial to listen to your body, pace yourself, and build up your activity levels gradually.
- **Neuropathy:** Some chemotherapy drugs can cause long-lasting numbness or tingling in the hands and feet. Your doctor may refer you to a specialist if neuropathy becomes bothersome.
- **Heart issues:** Treatments like doxorubicin (used in the R-CHOP regimen) can affect heart function. Your doctor may monitor your heart health with periodic tests such as echocardiograms.
- **Lung problems:** Some chemotherapy drugs and radiation to the chest can cause lung damage, leading to shortness of breath or chronic cough. Pulmonary function tests may be needed to check for lung issues.
- **Increased risk of infections:** Some treatments can weaken the immune system, making infections more likely. Vaccinations and preventive measures may be recommended to protect your health.

Emotional and Psychological Support

After finishing treatment, some patients experience anxiety, fear of recurrence, or emotional challenges. This is common, and it's important to seek support when needed. Options include:

- **Support groups:** Many cancer centers offer support groups for lymphoma survivors, where you can share experiences and coping strategies with others who understand what you're going through.
- **Counseling and therapy:** Professional help from a therapist or counselor who specializes in cancer care can help manage anxiety, depression, or fear of recurrence.
- **Mindfulness and relaxation:** Techniques such as meditation, yoga, or guided imagery can help reduce stress and promote mental well-being.

05

Maintaining a Healthy Lifestyle

Your overall health and wellness play a crucial role in your long-term recovery and quality of life after LBCL treatment. Here are some tips for staying healthy:

Diet and Nutrition

Eating a balanced, nutritious diet helps support your immune system and overall recovery. Focus on:

- Plenty of fruits and vegetables.
- Lean proteins (fish, poultry, legumes).
- Whole grains.
- Healthy fats (like those from nuts, seeds, and olive oil).
- Staying hydrated and limiting processed foods, sugary snacks, and alcohol.

A registered dietitian can help you create a meal plan tailored to your recovery needs.

Physical Activity

Regular physical activity can improve energy levels, boost mood, and help prevent long-term health issues. Start slowly and gradually increase your activity level based on your energy and stamina. Activities like walking, swimming, and yoga can be gentle on your body while providing important physical and mental health benefits. Always check with your doctor before starting a new exercise routine, especially after cancer treatment.

Avoid Smoking and Excessive Alcohol

If you smoke, quitting is one of the best things you can do for your long-term health. Smoking increases the risk of cancer recurrence and other health issues.

Limiting alcohol intake can also reduce the risk of complications and promote better health outcomes.

06

Staying Informed and Engaged

As a survivor of LBCL, staying informed about your health and any advances in lymphoma treatment is important. Here are some ways to stay engaged in your care:

- **Ask questions:** Always feel comfortable asking your healthcare team questions about your follow-up plan, any new symptoms, or concerns you have. They're there to support you.
- **Track your health:** Keep a notebook or use a digital app to record your symptoms, side effects, and how you're feeling day-to-day. This information can help guide discussions with your doctor at follow-up visits.
- **Stay up-to-date with screenings:** As you recover, your doctor will advise you on routine screenings for other health issues, such as heart health, cancer recurrence, or secondary cancers that may result from previous treatments.

Conclusion

Post-treatment monitoring and follow-up care are essential steps in your journey after Large B Cell Lymphoma treatment. While it can feel overwhelming at times, regular check-ups, monitoring for signs of recurrence, and managing long-term side effects will help you maintain the best possible health and quality of life.

By staying engaged with your healthcare team, managing side effects, and adopting a healthy lifestyle, you'll be well-prepared for a successful recovery and long-term remission.

ADDITIONAL TREATMENT

Treatment for Relapsed or Refractory Large B Cell Lymphoma (LBCL)

When Large B Cell Lymphoma (LBCL) does not respond to initial treatment (refractory disease) or returns after a period of remission (relapsed disease), it can be challenging for patients and their caregivers. However, there are several effective treatment options available for relapsed or refractory LBCL. This guide provides a detailed overview of these treatments and what to expect during this phase of your lymphoma journey.

01

Understanding Relapsed and Refractory LBCL

- **Relapsed LBCL:** This means the lymphoma returned after responding to initial treatment. It can come back in the same location or in a different part of the body.
- **Refractory LBCL:** This refers to lymphoma that did not fully respond or progressed during or shortly after treatment.

Both scenarios require more advanced or intensive therapies, but many patients respond well to second-line treatments. The treatment approach depends on several factors, including:

- How long the lymphoma was in remission (if it relapsed).
- How well the patient tolerated prior treatments.
- The patient's overall health and any other medical conditions.
- The characteristics of the lymphoma (such as genetic mutations).

02

Treatment Options for Relapsed or Refractory LBCL

There are several treatment approaches for relapsed or refractory LBCL, and your healthcare team will design a plan based on your specific situation. The primary options include salvage chemotherapy, stem cell transplant, CAR T-cell therapy, and targeted therapies.

Salvage Chemotherapy

Salvage chemotherapy is the term used for a second round of chemotherapy given when LBCL returns or doesn't respond to initial treatment. The goal is to shrink the lymphoma and prepare the patient for a potential stem cell transplant or other treatments.

Common Salvage Chemotherapy Regimens

- **R-ICE:** Rituximab, Ifosfamide, Carboplatin, and Etoposide.
- **R-DHAP:** Rituximab, Dexamethasone, High-dose Cytarabine (Ara-C), and Cisplatin.
- **R-GDP:** Rituximab, Gemcitabine, Dexamethasone, and Cisplatin.

What to expect:

These regimens typically involve hospitalization for several days, especially with regimens like R-DHAP, which require careful monitoring.

Salvage chemotherapy is usually given over 2 to 4 cycles, depending on how the lymphoma responds. Side effects may include fatigue, nausea, low blood cell counts (increased risk of infection), and hair loss, similar to the first-line treatments but possibly more intense due to prior therapy.

Stem Cell Transplant (SCT)

If salvage chemotherapy successfully shrinks the lymphoma, many patients may be candidates for a stem cell transplant. This procedure allows doctors to use higher doses of chemotherapy to kill more lymphoma cells, followed by the infusion of stem cells to restore healthy blood cell production.

Types of Stem Cell Transplant

- **Autologous Stem Cell Transplant (ASCT):** Uses the patient's own stem cells. These are collected before high-dose chemotherapy and infused back after treatment to help regenerate the bone marrow. This is the most common type of stem cell transplant for relapsed/refractory LBCL.
- **Allogeneic Stem Cell Transplant:** Uses stem cells from a donor. This option is less common for LBCL but may be considered in certain cases where autologous transplant isn't feasible.

What to expect:

- **Pre-transplant preparation:** Before the transplant, patients undergo high-dose chemotherapy to wipe out as many lymphoma cells as possible. This is followed by the infusion of the collected stem cells to repopulate the bone marrow.
- **Hospitalization:** Patients typically stay in the hospital for several weeks after the transplant to recover and to monitor for infections and other complications.
- **Recovery:** After discharge, it can take several months for the immune system to recover. Patients must be closely monitored during this time for infections and other side effects.

CAR T-Cell Therapy

CAR T-cell therapy is a revolutionary treatment for patients with relapsed or refractory LBCL, especially those who do not respond to salvage chemotherapy or are not candidates for stem cell transplant.

What is CAR T-Cell Therapy?

CAR (Chimeric Antigen Receptor) T-cell therapy involves genetically modifying a patient's own T cells (a type of immune cell) to specifically target and destroy lymphoma cells. The T cells are collected from the patient's blood, modified in a laboratory to attack the lymphoma, and then infused back into the patient's body.

Available CAR T-Cell Therapies for LBCL

- Axicabtagene ciloleucel (Yescarta)
- Tisagenlecleucel (Kymriah)
- Lisocabtagene maraleucel (Breyanzi)

What to expect:

- **Preparation:** Before the T cells are re-infused, patients receive a short course of chemotherapy to prepare the body for the new cells.
- **Infusion:** The modified CAR T cells are then infused intravenously in a hospital setting.
- **Side effects:** CAR T-cell therapy can cause significant side effects, including cytokine release syndrome (CRS), which is similar to a severe immune reaction with fever, low blood pressure, and difficulty breathing, and neurological toxicity that can affect speech, thinking, and memory.

  These side effects can be serious, but they are often managed successfully in a specialized hospital setting.

Recovery and effectiveness:

CAR T-cell therapy can lead to long-term remission for some patients who have not responded to other treatments. Follow-up care after CAR T-cell therapy is crucial to monitor for any late side effects or signs of recurrence.

Targeted Therapies

If patients are not candidates for CAR T-cell therapy or a stem cell transplant, or if their lymphoma does not respond to these treatments, targeted therapies may be used. These treatments specifically target cancer cells based on their genetic mutations or the proteins they express.

Targeted Drugs for LBCL

- **Polatuzumab vedotin:** An antibody-drug conjugate that targets a protein called CD79b on B cells and delivers a chemotherapy drug directly to the lymphoma cells.
- **Brentuximab vedotin:** An antibody-drug conjugate that targets CD30, used in specific types of relapsed or refractory LBCL.
- **Lenalidomide (Revlimid):** A drug that enhances the immune system's ability to fight lymphoma and is sometimes used in combination with rituximab for certain types of LBCL.
- **Ibrutinib:** A targeted therapy that blocks the activity of a protein (BTK) that helps lymphoma cells grow.

What to expect:

- Targeted therapies are often given as pills or through infusions.
- These therapies may have different side effects than chemotherapy, such as low blood counts, infections, or fatigue, but they tend to be less toxic for many patients than traditional chemotherapy.

These treatments can be used alone or in combination with other therapies and may offer patients more options if other treatments fail.

03

Clinical Trials and Emerging Therapies

For some patients, participating in a clinical trial may be an option, especially if standard therapies have not been effective. Clinical trials often provide access to cutting-edge treatments that are not yet widely available but show promise in treating relapsed or refractory LBCL.

- **Checkpoint inhibitors:** These drugs, such as pembrolizumab (Keytruda), help the immune system recognize and destroy lymphoma cells by blocking proteins that cancer cells use to hide from the immune system.
- **Bispecific antibodies:** These are newer drugs designed to bind both to the lymphoma cell and the patient's immune cells, bringing them together to enhance the body's ability to kill cancer cells.

Your doctor may discuss clinical trial opportunities if they believe an experimental therapy could be beneficial for your specific situation.

04

Managing Side Effects During Relapsed or Refractory Treatment

Treatment for relapsed or refractory LBCL can be more intense than initial treatment, so managing side effects is critical for maintaining quality of life. Common side effects during this phase of treatment may include:

- **Infection risk:** Chemotherapy and CAR T-cell therapy can weaken the immune system, increasing the risk of infections. Preventive antibiotics and antivirals may be given, and patients are encouraged to follow strict infection control practices (eg, hand washing, avoiding crowds).
- **Fatigue:** Prolonged treatments can lead to significant fatigue. Patients are encouraged to rest and prioritize activities that conserve energy.
- **Neuropathy:** Chemotherapy can cause numbness or tingling in the hands and feet. This may be managed with medication or physical therapy.
- **Cytokine release syndrome (CRS):** As mentioned, this serious side effect of CAR T-cell therapy can be managed in the hospital with medications like tocilizumab (Actemra).

Working closely with your healthcare team will ensure that any side effects are treated quickly and effectively.

05

Emotional and Practical Support for Patients and Caregivers

Coping with relapsed or refractory lymphoma can be emotionally challenging for both patients and caregivers. It's important to seek support during this time.

- **Support groups:** Many cancer centers and online communities offer support groups where patients and caregivers can share their experiences and receive encouragement.
- **Counseling and therapy:** Professional support from a therapist or counselor who specializes in cancer care can help manage the emotional stress, anxiety, and depression that can arise during this phase of treatment.
- **Practical assistance:** Many organizations provide financial assistance, transportation services, or help with navigating insurance paperwork for cancer treatment.

Conclusion

While relapsed or refractory LBCL can be more complex to treat, advances in therapy offer hope for many patients. Treatments like salvage chemotherapy, stem cell transplant, and CAR T-cell therapy have improved outcomes for patients who don't respond to initial treatment. Newer targeted therapies and clinical trials also provide additional options, even for those with difficult-to-treat lymphoma.

Staying informed, working closely with your healthcare team, and leaning on emotional and practical support resources can help you and your caregivers navigate this challenging stage.

The relapse hit me harder emotionally than the initial diagnosis. I had done everything right, gone through all the treatments, and still, it came back. I kept asking myself, 'What did I do wrong?' It took time to accept that it wasn't my fault.

Laryssa N, Age 68
Lymphoma Patient

When the cancer came back, I felt like I had failed as a caregiver. I couldn't shake the feeling that I hadn't done enough to help them stay healthy. Rationally, I knew it wasn't my fault, but emotionally, it was hard not to feel guilty.

Lymphoma Caregiver

Psychological and Emotional Support in Large B Cell Lymphoma

A diagnosis of Large B Cell Lymphoma (LBCL) can be overwhelming and emotionally challenging, not just for the patient but also for caregivers. Facing cancer treatment, coping with uncertainty, and managing the physical and emotional impact of the disease can create significant stress. The psychological and emotional aspects of cancer care are just as important as the physical aspects, and receiving adequate support during this time is crucial to navigating the journey.

This guide provides an overview of the types of emotional and psychological support available for patients with LBCL and their caregivers, and information on how to access these resources.

01

The Emotional Impact of a Lymphoma Diagnosis

Being diagnosed with LBCL can bring a range of emotions, including shock, fear, anger, sadness, and anxiety. These feelings are normal and can change as the disease progresses or as treatments are initiated. Each person's emotional response to lymphoma is unique, but common reactions include:

- **Fear of the unknown:** Uncertainty about treatment, prognosis, and the future.
- **Anxiety:** Worrying about treatment outcomes, potential side effects, and the impact on daily life.
- **Depression:** Feelings of sadness, hopelessness, or loss of interest in activities that once brought joy.
- **Anger or frustration:** At the diagnosis, the side effects of treatment, or the disruption to normal life.
- **Guilt:** About the burden their illness may place on loved ones.

It's important to recognize these feelings and seek support, as emotional health can directly influence physical health and recovery. There are many resources available to help manage these emotions.

02

Emotional Support for Patients

Emotional support comes in many forms and can help you manage the challenges of cancer treatment, maintain a positive outlook, and improve your overall quality of life.

Individual Counseling and Therapy

Talking to a licensed therapist or counselor can be extremely beneficial for patients coping with the emotional toll of LBCL. Psychologists, social workers, and counselors who specialize in oncology (cancer care) can provide valuable strategies for managing stress, anxiety, and depression. Some approaches include:

- **Cognitive-behavioral therapy (CBT):** A structured, short-term therapy that helps you identify and change negative thought patterns that may contribute to anxiety or depression.
- **Mindfulness and relaxation techniques:** These techniques, such as meditation and deep breathing, help reduce stress and promote emotional well-being.
- **Grief counseling:** Many patients feel a sense of loss after a cancer diagnosis, including loss of their previous sense of health, freedom, or independence. Counseling can help to work through these feelings of grief.

Talking with a therapist can also help address specific issues such as fear of recurrence, body image concerns, or the emotional strain of prolonged treatment.

Support Groups

Support groups offer a way to connect with other patients who are going through similar experiences. This can help reduce feelings of isolation and provide a safe space to share your feelings, fears, and triumphs. Support groups are often facilitated by mental health professionals or social workers and are available in-person or online.

Types of support groups include:

- **Cancer-specific support groups:** Groups focused on patients with non-Hodgkin lymphoma or LBCL, allowing participants to share experiences related to their specific diagnosis.
- **Age-specific or gender-specific groups:** Some groups cater to particular demographics, such as younger adults, older adults, or women, to address unique emotional challenges.
- **Online communities:** For those who prefer the convenience of connecting from home, online forums, social media groups, and virtual meetings offer the opportunity to interact with other patients and caregivers.

Organizations like the Leukemia & Lymphoma Society and CancerCare provide listings of support groups and resources available both locally and online.

Mind-Body Practices

Incorporating mind-body practices into your daily routine can have a significant positive impact on mental health. These practices include:

- **Yoga:** Gentle stretching and breathing exercises can help improve physical strength and flexibility, while promoting relaxation and stress relief.
- **Meditation and mindfulness:** These practices teach you to focus on the present moment, reducing anxiety about the future or regrets about the past.
- **Art therapy or journaling:** Expressing your thoughts and emotions through creative outlets like painting, drawing, or writing can be therapeutic.

Mind-body practices are often offered through cancer centers or wellness programs designed specifically for patients.

03

Emotional Support for Caregivers

Caregivers—whether spouses, family members, or friends—play a critical role in supporting LBCL patients throughout their treatment and recovery. However, the emotional strain on caregivers can be significant. It is common for caregivers to experience caregiver burnout, which includes feelings of exhaustion, frustration, and stress due to the demands of caring for a loved one with cancer.

Caregiver Support Groups

Support groups for caregivers provide a space to share experiences and challenges with others who understand the demands of caregiving. These groups offer emotional support, practical advice, and coping strategies for managing stress. Many cancer centers offer caregiver support groups, or you can find them through organizations like Cancer Support Community and Leukemia & Lymphoma Society.

Individual Counseling for Caregivers

Caregivers can also benefit from individual counseling or therapy. Speaking with a professional can help manage stress, anxiety, and feelings of overwhelm. Counseling can also help with setting healthy boundaries, finding balance between caregiving responsibilities and personal needs, and developing effective communication strategies with the patient and healthcare team.

Respite Care

Taking breaks from caregiving is essential for maintaining emotional well-being. Respite care services provide temporary relief for caregivers by arranging professional in-home care or short-term stays at a care facility. This allows caregivers to rest, recharge, and attend to their own health and wellbeing.

04

Dealing with Specific Emotional Challenges

There are certain psychological challenges that commonly arise in patients and caregivers during the lymphoma journey. Addressing these proactively can improve emotional health.

Coping with Fear of Recurrence

Fear of lymphoma coming back (recurrence) is common, even after successful treatment. This fear can lead to anxiety, hypervigilance about symptoms, and difficulty enjoying life. To cope with this:

- **Communicate with your healthcare team:** Ask your doctor about the signs of recurrence and how often follow-up appointments or scans are necessary. Being informed can help you feel more in control.
- **Practice mindfulness:** Staying present and focusing on the here and now can help reduce worries about the future.
- **Engage in life-affirming activities:** Spending time with loved ones, engaging in hobbies, or setting new personal goals can help shift focus away from fear and towards a fulfilling life.

Managing Treatment-Related Fatigue

Cancer treatments like chemotherapy and radiation often lead to physical and emotional fatigue. This can contribute to feelings of frustration, sadness, or irritability. Some ways to manage this:

- **Prioritize rest and relaxation:** Balance activity with rest, and listen to your body's cues.
- **Gentle exercise:** Activities like walking or yoga can help boost energy and improve mood.
- **Pacing yourself:** Break up daily tasks into smaller, manageable steps to avoid feeling overwhelmed.

Addressing Changes in Body Image

Lymphoma treatment can cause physical changes, such as hair loss, weight changes, or scars from surgery, which can affect body image and self esteem. Here are some ways to manage these changes:

- **Talk about your feelings:** Sharing your concerns with a counselor or support group can help you process these changes.
- **Include self-care:** Taking care of your appearance in ways that make you feel good, such as wearing scarves, makeup, or comfortable clothing, can improve confidence.
- **Focus on inner strength:** Remember that your body has been through a significant challenge, and focusing on your resilience rather than appearance can shift your perspective.

05

Practical Strategies for Caregivers and Patients

In addition to emotional support, practical strategies can help manage stress and prevent burnout.

Creating a Support Network

Both patients and caregivers benefit from having a broad support network. Reach out to family, friends, neighbors, or community organizations to help with daily tasks like cooking, cleaning, transportation, or childcare. Asking for help can reduce feelings of being overwhelmed.

Delegating Responsibilities

It's important to delegate caregiving responsibilities among several people, if possible. This might involve asking siblings, friends, or other relatives to share tasks like attending medical appointments, helping with household chores, or providing companionship.

Financial and Legal Support

The costs of cancer treatment can be a significant source of stress. Patients and caregivers should not hesitate to seek help from hospital social workers or financial counselors, who can provide information about:

- Insurance coverage
- Financial assistance programs
- Disability benefits
- Advance care planning (eg, healthcare directives, power of attorney)

Conclusion

Psychological and emotional support is a critical part of the cancer care journey for patients with Large B Cell Lymphoma and their caregivers. Whether through individual counseling, support groups, mindfulness practices, or practical strategies, there are many ways to find support and reduce the emotional burden of cancer. By acknowledging the emotional challenges and seeking help early, patients and caregivers can improve their overall well-being and navigate the lymphoma journey with greater resilience and hope.

Glossary of Key Terms About Large B Cell Lymphoma:

A

Aggressive Lymphoma: A fast-growing type of lymphoma, like Large Cell B Cell Lymphoma, or LBCL, that requires prompt treatment. These lymphomas tend to spread quickly but can respond well to treatment.

Ann Arbor Staging System: A system used to describe the extent of lymphoma. The stages (I to IV) indicate how far the disease has spread within the body.

B

B Cells: A type of white blood cell (lymphocyte) that plays a key role in the immune system by producing antibodies. LBCL arises from abnormal B cells.

B Symptoms: Specific symptoms often seen in patients with lymphoma, including unexplained fever, night sweats, and significant weight loss (more than 10% of body weight over 6 months).

Biopsy: A procedure in which a sample of tissue is removed from the body and examined under a microscope to diagnose diseases such as lymphoma.

Bone Marrow Biopsy: A test where a small sample of bone marrow (usually taken from the hip bone) is examined to see if lymphoma has spread to the bone marrow.

C

CAR T-Cell Therapy: A treatment in which a patient's T cells (a type of immune cell) are modified in a lab to attack cancer cells, then reinfused into the body. CAR T-cell therapy is often used for relapsed or refractory LBCL.

Chemotherapy: A type of cancer treatment that uses drugs to kill or slow the growth of cancer cells. Chemotherapy is a common treatment for LBCL.

Complete Blood Count (CBC): A blood test that measures the number of red blood cells, white blood cells, and platelets in the blood. It helps doctors assess the overall health of a patient and detect blood abnormalities.

Cyclophosphamide: A chemotherapy drug often used in combination with other drugs to treat LBCL. It is part of the R-CHOP regimen.

D

Diffuse Large B Cell Lymphoma (DLBCL): The most common type of LBCL, characterized by large, abnormal B cells. It is considered an aggressive form of lymphoma that can spread quickly but is often treatable.

Doxorubicin: A chemotherapy drug used to treat LBCL, often as part of the R-CHOP regimen. It works by damaging the DNA inside cancer cells, preventing them from growing.

E

Extranodal Lymphoma: Lymphoma that starts or spreads to areas outside the lymph nodes, such as the liver, bone marrow, or lungs.

F

Flow Cytometry: A lab test that analyzes cells in a sample to determine their size, shape, and the presence of specific markers. It helps identify the type of lymphoma cells and their characteristics. Flow cytometry helps monitor the effectiveness of CAR T-cell therapy by tracking the behavior of the modified T cells.

Fluorescence In Situ Hybridization (FISH): A test that detects genetic abnormalities in lymphoma cells. It is used to identify gene mutations or changes that may affect treatment decisions.

G

Genetic Engineering: Testing done on lymphoma cells to identify specific mutations or changes in the genes. This information helps doctors understand how the lymphoma behaves and which treatments might be most effective.

H

Histopathology: The microscopic examination of tissue to study the presence and characteristics of disease, such as cancer. Histopathology is essential in confirming an LBCL diagnosis.

I

Immunohistochemistry: A lab test that uses antibodies to detect specific proteins on the surface of cells. It helps identify whether the lymphoma is B cell-related (such as LBCL) and assists in confirming the diagnosis.

Immunotherapy: A type of cancer treatment that uses the body's immune system to fight cancer. In LBCL, drugs like rituximab are used to target and destroy lymphoma cells.

Incisional Biopsy: A biopsy in which only part of a lymph node or tissue mass is removed for testing.

L

Lactate Dehydrogenase (LDH): An enzyme that may be elevated in patients with aggressive lymphomas like LBCL. High LDH levels can indicate active disease and help assess the severity of the lymphoma.

Lymph Nodes: Small, bean-shaped structures that are part of the immune system. Lymph nodes filter substances and help fight infection. LBCL often causes the lymph nodes to swell.

Lymphoma: A type of cancer that begins in the lymphatic system, which includes the lymph nodes, spleen, and other tissues involved in the immune response. LBCL is a subtype of non-Hodgkin lymphoma.

M

Magnetic Resonance Imaging (MRI): A scan that uses magnets and radio waves to create detailed images of the inside of the body. It can help detect the spread of lymphoma to areas like the brain or spine.

Monoclonal Antibodies: A type of immunotherapy used to treat LBCL. Rituximab, a monoclonal antibody, targets the CD20 protein on B cells, helping the immune system destroy lymphoma cells.

N

Non-Hodgkin Lymphoma (NHL): A group of blood cancers that include LBCL. Unlike Hodgkin lymphoma, NHL is defined by the absence of Reed-Sternberg cells and includes many subtypes, with LBCL being one of the most common and aggressive forms.

P

PET Scan (Positron Emission Tomography): A type of imaging test that shows areas of high metabolic activity, often used to detect cancer. PET scans are frequently used to stage LBCL and monitor how well treatment is working.

Prednisone: A corticosteroid used in combination with chemotherapy to reduce inflammation and enhance the effectiveness of treatment. It is part of the R-CHOP regimen for LBCL.

R

R-CHOP: The standard chemotherapy regimen for treating LBCL, consisting of:

- Rituximab (R) (an immunotherapy drug).
- Cyclophosphamide (C) (a chemotherapy drug).
- Doxorubicin (H) (a chemotherapy drug).
- Vincristine (O) (a chemotherapy drug).
- Prednisone (P) (a corticosteroid).

Relapsed Lymphoma: Lymphoma that has returned after initial treatment and a period of remission.

Refractory Lymphoma: Lymphoma that does not respond to initial treatment or continues to progress during treatment.

Remission: The period during which the signs and symptoms of lymphoma are reduced or disappear. Remission can be partial or complete.

Rituximab: A monoclonal antibody used to treat LBCL by targeting the CD20 protein on B cells, helping the immune system destroy lymphoma cells.

S

Salvage Chemotherapy: Chemotherapy given after the lymphoma has relapsed or failed to respond to initial treatment. The goal is to shrink the cancer and prepare the patient for a stem cell transplant or other therapies.

Staging: The process of determining how far the lymphoma has spread in the body. Staging is essential for creating a treatment plan and predicting outcomes.

Stem Cell Transplant: A treatment often used for relapsed or refractory LBCL. It involves high-dose chemotherapy to destroy cancer cells, followed by the infusion of healthy stem cells to rebuild the bone marrow.

T

T Cells: A type of white blood cell that plays a key role in the immune system. Although LBCL affects B cells, T-cell therapies, like CAR T-cell therapy, can be used to treat aggressive lymphomas by enhancing the immune system's ability to attack cancer cells.

V

Vincristine: A chemotherapy drug used in the treatment of LBCL, often as part of the R-CHOP regimen. It works by interfering with the ability of cancer cells to divide and grow.

W

Watchful Waiting: A strategy sometimes used for slow-growing lymphomas where treatment is delayed until the disease shows signs of progression. This is not usually recommended for aggressive lymphomas like LBCL, which require prompt treatment.

Z

Zevalin: A type of radioimmunotherapy used in some cases of relapsed or refractory lymphoma. It combines a monoclonal antibody with radiation to deliver targeted therapy directly to lymphoma cells.