

## Side Effect Management in Lymphoma

### Overview

Lymphoma is the most common blood cancer. The two main forms of lymphoma are Hodgkin lymphoma 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).

Lymphoma is often painless and asymptomatic early on, but can cause symptoms including swollen lymph nodes in the neck, armpits or groin, fever, drenching night sweats, unintentional weight loss, fatigue, or discomfort among other symptoms. Treatments for lymphoma, including chemotherapy, monoclonal antibodies, radiation, and steroids often have side effects, although many treatments are very well tolerated. Each patient is different, so the appearance and degree of side effects may be different as well. Some patients experience many side effects and others very few, but nearly all patients will experience some. These side effects may vary based on treatment, lymphoma type and stage, and the patient's age, other medical problems, and overall health status. Although most side effects are temporary and resolve after therapy, they can cause a great deal of distress.

Chemotherapy drugs kill cancer cells, but these drugs may also kill healthy cells. When healthy cells in the bone marrow are killed, it can cause side effects such as anemia (lower white blood cell counts); decreasing platelets, which may increase the risk of bleeding; and decreasing the ability of the immune system to fight infection, making patients more prone to infection.

Chemotherapy can be physically demanding and cause:

- Weight loss
- Fatigue
- Hair loss
- Lowered ability to fight infection
- Changes in smell and taste
- Vomiting and nausea
- Mouth sores
- Decreased platelet counts
- Anemia
- Diarrhea

While monoclonal antibodies commonly have fewer side effects than most cancer treatments, they can affect normal cells as well as cancer cells. This can lead to an increased risk of infection, injection site reactions, blood abnormalities, as well as a variety of other side effects depending on the specific treatment.

Radiation uses high-energy x-rays to kill cancer cells. Side effects of radiation appear in the part of the body receiving the radiation, but can also result in overall fatigue. Skin changes, such as pain, itching, or redness, almost always go away after radiation therapy is completed.

Steroids can cause a specific set of side effects including insomnia (not being able to fall asleep or stay asleep), increased appetite, mood/personality changes (feeling more irritable, angry, sad, or anxious than usual), weight gain, increased blood pressure, and/or increased blood sugar.

### Diet

Diet is a key part of managing both disease and side effects as it provides the body with the nutrients and energy necessary for being and feeling healthy. Many side effects can affect how patients feel about food and eating. Eating smaller meals more often rather than a few large meals each day may help you feel less nauseous and make it easier to eat when appetite is diminished. Foods rich in carbohydrates such as starches can also help decrease nausea, whereas fatty foods may make nausea worse. Liquid nutritional drinks are a good way of getting enough vitamins and calories when you have loss of appetite, nausea, or mouth sores. Drinking a lot of liquid is important for preventing dehydration, which often results from nausea, vomiting, and diarrhea.

During times when you feel well enough to eat, a diet of fresh fruits and vegetables, protein, carbohydrates, and dairy products can help patients increase and maintain their strength and energy, and improve their body's healing ability.

Avoiding particular foods can ease some treatment side effects. For example, liquids or soft foods can make eating less painful

if you have a dry mouth or mouth sores. Also, certain foods may cause discomfort if you have a sore mouth from chemotherapy and radiation. Foods that are crunchy, salty, acidic (like orange juice), or spicy should be avoided. Dietary considerations are also important when eating solid food is difficult or when your sense of taste changes. Some foods that were pleasurable before beginning cancer treatment may not be pleasurable during treatment and vice versa. It is important to experiment with different foods and find out what tastes good during cancer treatment.

Dietary considerations are also important when white blood cell counts are low, which can result in the body having a harder time fighting infection. Avoid soft cheeses or cheeses with mold (brie, feta, or bleu) and raw or undercooked meat, fish, chicken, eggs, or tofu to lessen the risk of getting an infection. Fresh fruits and vegetables should be rinsed well or washed.

Vitamins and dietary supplements may affect lymphoma treatment. You should let your doctor know if you are taking any herbs, vitamins, or herbal supplements. Alcohol may be very irritating if the mouth is sore during cancer treatment. It may also affect the body differently during treatment or even interact with the chemotherapy drugs. It is important to discuss with one's doctor whether alcohol is safe in one's particular circumstance.

## Lifestyle

Lymphoma and its treatments can cause fatigue. Changing your routine may help you accomplish your daily tasks more easily. Prioritize the most important activities and let people who want to help do so. Planning chores or breaking down big tasks into smaller ones can help decrease the tiredness you experience. Remember that staying active and maintaining an exercise routine as much as is comfortable is vitally important in keeping the body as strong and energetic as possible. Also, taking the time to fit in short naps (20 to 30 minutes) if you feel fatigued may help recharge your body and mind during the day. Intimate relationships may be affected during and following a diagnosis and treatment for lymphoma. Intimacy is a very complicated issue that can be impacted by psychological factors (body image, desire, emotional strain) as well as physical changes (fatigue, pain, dryness) that occur. Patients may experience changes in all, some, or none of the phases of sexual response

(desire, arousal, orgasm, resolution). Open communication, time, and patience are important while finding the most helpful remedy. Discuss with your healthcare team what sexual changes patients tend to experience prior to treatment and what can be done to prepare and manage these changes if they occur.

If white blood counts are low as a result of chemotherapy, avoiding people who are coughing or sneezing can help reduce the risk of infection. Wash your hands or use a hand sanitizer after visiting public places or touching items used by others. It is important to let your doctor know if you develop a fever during chemotherapy, as this may be a sign of an infection.

Cancer and cancer therapy may also affect thinking, memory, concentration, and attention. This is sometimes referred to as "chemo brain." Modest lifestyle modifications may be helpful, including making reminder lists, following structured routines, and, if necessary, delaying important decisions or tasks that require intense concentration. Exercising the mind with puzzles and brain teasers helps as well.

## Medications and Products

Nausea and vomiting are well-known side effects of chemotherapy and can sometimes be severe. They can prevent you from doing the things you want to do, and even interfere with or halt treatment. For chemotherapy regimens that commonly cause nausea, anti-nausea medications (anti-emetics) are often used prophylactically with each chemotherapy cycle. The goal is to prevent nausea from occurring in the first place. If nausea or vomiting does occur, it is important that you take your anti-nausea medications soon after symptoms start, since taking these medications sooner may prevent the symptoms from becoming severe. Let your doctor know about your nausea or vomiting, as additional medications can be used to relieve and prevent nausea. Both diarrhea and constipation can also be side effects of chemotherapy and radiation. These can also be prevented or alleviated with medication so it is important to discuss these symptoms with your doctor or nurse as well.

Certain cancer treatments can result in mouth sores or ulcers in the lining of the mouth, gums, tongue, or lips. Dehydration, poor mouth care, oxygen therapy, alcohol or tobacco, and/or insufficient nutrients may also cause sores. They can be painful and distressing

and range from inconvenient to severe, interfering with eating and drinking, and potentially becoming infected. Healing may take 2-4 weeks. This may interfere with the continuation of treatment. Although there is no guaranteed way to prevent mouth sores, there are ways to reduce the risk of them and help mitigate their effects. Resolve any dental issues with your dentist before beginning chemotherapy as they can worsen once treatment begins. Frequent mouth sores may be caused by a herpes simplex virus which can be treated with antiviral medications. Staying hydrated by drinking 2-3 quarts of water each day can help prevent sore formation. Ice chips during treatment and for the first half hour following treatment can help reduce the risk of mouth sores following some types of chemotherapy. Drinking with a straw can help shield sensitive areas of the mouth. If it becomes difficult to use a toothbrush due to sores and sensitivity, foam swabs are available to limit the irritation. Avoid mouthwash containing alcohol. Salt water washes or a combination of baking soda and warm water can be used instead. Whitening toothpastes may contain hydrogen peroxide which can irritate sores. Maalox or Milk of Magnesia can help promote healing of sores. Some medications such as palifermin (Kepivance) stimulates the growth of cells on the surface of the mouth and may help it recover more quickly. There are also medications which coat the entire lining of the mouth to form a film, protecting against sores and minimizing pain during eating and drinking. Topical painkillers such as Anbesol or Orajel can also help to numb sore areas. Discuss oral health with your doctor, dentist, and healthcare team prior to and during treatment to help prevent and manage any mouth sores that develop. Medication is available to decrease the pain or discomfort caused by mouth sores. There are also products that can help ease dry mouth to prevent mouth sores that may result from activities like teeth brushing and flossing.

Insufficient sleep can impact energy levels, attention, cognitive function, and mood. Persistent insomnia has been associated with anxiety and depression. Insufficient sleep may also affect the immune system. Adequate sleep may even increase a person's pain tolerance. Many people with cancer experience sleep disturbances which can impact quality of life. This can be due to pain, hospitalization, treatments, and/or the psychological impact of their disease. Difficulties with sleeping should be discussed with

your doctor as there are multiple approaches to increasing sleep depending on the cause and a patient's preferences.

Not every medicine will work for everyone, but it is important to remember that there are many options and it may take some time to find the right drug.

### **Clothes/Accessories**

Chemotherapy can make the skin sensitive to the sunlight and increase the risk of sun burns or rashes. Hats, scarves, and wigs reduce sun exposure in patients with hair loss and can lessen the distress associated with hair loss, which can negatively impact self-image. It is important to wear sunscreen on sun exposed areas when planning to spend a prolonged period of time in direct sunlight.

### **Relaxation Techniques**

Meditation, guided imagery, deep breathing, reading, yoga, and listening to music can provide distraction from symptoms and help you overcome insomnia. Mindful relaxation techniques, such as meditation and yoga, are often helpful for accessing inner energy and directing thoughts toward healing and health. Guided imagery works to lessen tension in the body caused by worry and replace it with positive images that might reduce pain and other side effects. These methods have also been shown to aid the recovery process by improving mood, attitude, self-image, and outlook.

### **Follow-up**

Patients in remission should have regular visits with a physician who is familiar with their medical history as well as with the treatments they have received. Medical tests, such as blood tests and computed axial tomography (CAT) scans, 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 overall health at the time of treatment. Doctors will also check for these effects during follow-up care. 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.

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## Support

A lymphoma diagnosis often triggers a range of feelings and concerns. In addition, cancer treatment can cause physical discomfort. Support groups and online message boards can help patients connect with other people who have lymphoma. One-to-one peer support programs, such as LRF's Lymphoma Support Network, match lymphoma patients (or caregivers) with volunteers who have gone through similar experiences.

## 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. LRF also provides many educational activities, from in-person meetings to teleconferences and webcasts. For more information about any of these resources, visit the website at [www.lymphoma.org](http://www.lymphoma.org) or contact the Helpline at (800) 500-9976 or [helpline@lymphoma.org](mailto:helpline@lymphoma.org).