

Lymphoid Irradiation

Written by the nursing staff of the Department of Radiation Oncology

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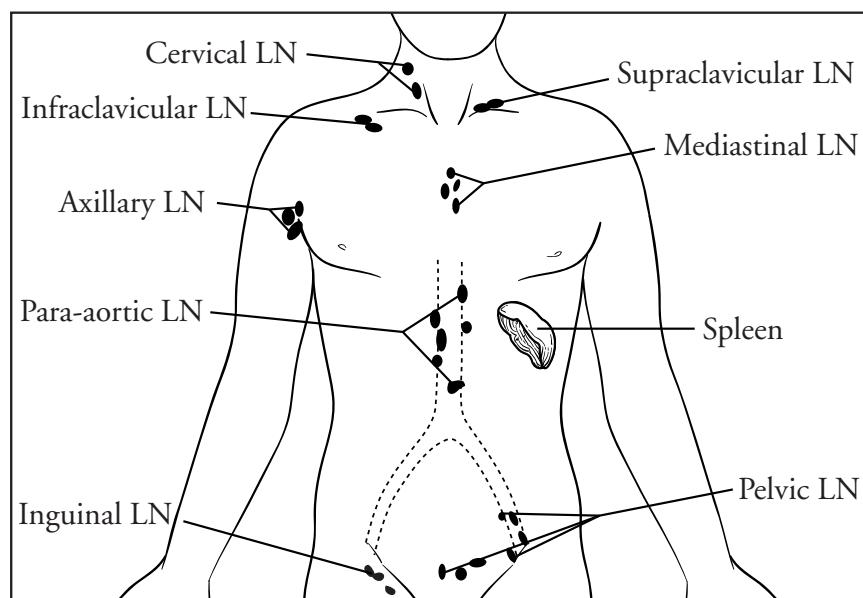
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Introduction

You will receive radiation therapy to the involved lymph node regions in your body. This is part of the treatment for lymphoma. This booklet describes how the therapy is planned and given. It describes the possible side effects of treatment and tells you how to care for yourself during and after treatment.

The lymph node (LN) regions that will be irradiated during your treatment are:

- Cervical LN, in the neck
- Supraclavicular LN, above the collar bone
- Infraclavicular LN, below the collar bone
- Mediastinal LN, in the middle of the chest
- Axillary LN, in the armpit
- Para-aortic LN, in the abdominal area
- Spleen, in the abdominal area
- Pelvic LN, in the pelvis
- Inguinal LN, in the groin



Simulation

Before you begin treatment you will go through simulation and treatment planning. These are done to ensure that:

- the treatment site is mapped out,
- you get the right dose of radiation, and
- the dose to nearby tissue is minimized.

During simulation, you will have x-rays and your skin will be marked. These marks define the area to be treated. Simulation takes two to four hours.

Preparation for Simulation

There is usually no special preparation for simulation. You may eat and drink as you normally would the day of the procedure. Wear comfortable clothes. Do not wear earrings or necklaces. If lying in one position for a long time will be uncomfortable, take Tylenol® or your usual pain medicine. Take it one hour before your simulation appointment. If you are concerned that you may get anxious during the procedure, speak with your doctor about medicine that may be helpful.

Some patients will need a PET-CT scan during the simulation. If you are having one, do not:

- **Eat or drink anything except plain water six hours before your appointment time.**
- Chew gum or suck hard candy, cough drops, or mints.

If you have had anything except water, your scan may need to be rescheduled. The nurse will give you detailed instructions to prepare you for the PET scan. Some people are allergic to intravenous contrast. If you are, you will be told what to do.

Simulation Day

When you arrive for your appointment, the radiation therapist will greet you and take a photograph of your face. This picture will be used to identify you throughout your treatment. It is a standard safety measure. The therapist will explain the simulation to you. If you have not already signed a consent form, your doctor will review everything with you. You will then sign the consent.

You will undress and change into a hospital gown. Keep your shoes on. The therapist will then help you lie on a table on your back. Although the simulation table will have a sheet on it, the table is hard and has no cushion. If you have not taken pain medicine and think you may need it, tell the therapist before the simulation begins. The temperature in the room is usually cool. If you become uncomfortable at any time during the procedure, let a therapist know. Throughout simulation, you will feel the table move to different positions. The lights in the room will be turned on and off and you will see red laser lights on each wall. Do not look directly into the red beam as this may hurt your eyes. The therapists use these laser lights as a guide when they position you on the table.

Although the therapists will walk in and out of the room during the procedure, there will always be someone who can see you and hear you. You will hear the therapists speaking to each other as they work. They will explain what they are doing, but please do not speak once they begin, as this may cause you to move on the table. Of course, let them know if you are uncomfortable or need help. To help pass the time, music can be played throughout the procedure. We have both tapes and CDs, or you can bring one from home.

Positioning

You will be lying on your back throughout the simulation, with your arms either at your side or raised above your head. A chin strap, similar to the type football players wear, may be used to keep your head in position. For some patients, a mask will be made. While you are lying on the table, the therapist(s) will place a warm, wet sheet of plastic mesh over your face and will shape it to fit around your head and shoulders to make the mask. You will be

able to hear and breathe without difficulty while the mask is on. As the mask cools, it will harden and you will feel some pressure as the therapist fits the mask to your face. For some patients, an upper body mold will be made. The therapists will pour warm fluid into a large plastic bag that will be sealed and placed on the table. You will lie on top of the bag, on your back, with your arms raised above your head. The fluid will feel warm initially, but it will cool as it hardens. While it is cooling, the therapists will tape the bag to your skin so that it will take the shape of your upper body and arms. Making a mold or mask takes about 15 minutes. The chinstrap, masks, or molds are used to help you maintain the same position each time you receive your treatment.

X-ray Images

Lying in position, in your mold if you have one, x-ray images will be taken of the area to be treated. These may be done on an x-ray machine called a simulator or on a special CT scan machine called an AcQ-Sim. Alternatively, CT scans may be taken in Radiology. These CT scans are used only to map your treatment plan. They are not used for diagnosis or to find tumors.

You will hear the machines as they are turned on and off. Even if the noise seems loud, the therapists will be able to hear you if you need to speak with them. The x-ray images take about 45 minutes.

Skin Markings (Tattoos)

The therapists will draw on your skin with a felt marker. Then they will make permanent skin markings, called tattoos, with a sterile needle and a drop of ink. The sensation of getting one feels like a pinprick. The tattoo marks are no bigger than the head of a pin. They will be placed in the area being treated. After the tattoos are made, the therapist will take several photographs of you in the simulation position. The photographs and tattoo marks will be used as guides to position you correctly on the table each day for treatment. The felt markings can be washed off after simulation. The tattoos are permanent and will not wash off.

Scheduling

At some time during the simulation, the therapist(s) will ask you what time of day you would like to have treatments. We will try to give you the time you like. However, we need a two-hour window because the time you prefer may not be open. If the time you want is taken, you will move to that time slot once the patient who has it completes treatment. Please know that we will do our best to give you the appointment time you want as soon as we can.

At the end of simulation, you will be given an appointment card with the date and time of your initial set-up. This is the final appointment before your treatment begins.

Treatment Planning

During the time between your simulation and initial set-up, your radiation oncologist will work with a team to plan your treatment. They will use your simulation x-rays and/or CT scan to plan the angles and shapes of the radiation beams for you. They will also compute the dose that your body will receive. The details are carefully planned and checked. This takes between five days and two weeks.

Initial Set-up or Beam Films

Before your first treatment, you will be scheduled for a set-up. This generally takes about one hour. If pain medicine was helpful during simulation, you may want to take it before this visit.

When you come for the set-up, you will be shown the dressing room and asked to change into a gown. The therapists will bring you to the room where you will receive your treatment each day. They will position you on the table. You will lie exactly as you were the day of your simulation. X-rays of each of the radiation beams (beam

films) will be taken to make sure that your position is correct and that the area being treated is exactly what your radiation oncologist wants. The beam films will be repeated throughout your treatment. They are used to make sure you are in the right position and are getting treated in the right place. They are **not** used to see how your tumor responds to the treatment. You will be scheduled to begin treatment within several days after your set-up.

Treatment Administration

Radiation treatments are given daily, Monday through Friday, for about _____ weeks. You must come in every day for your treatment. Treatment may not be as effective if you skip or miss treatment days. However, you may have one or two scheduled days off for the machines to be maintained. If you need to change your schedule for any reason, please speak with your radiation therapist.

After you check in at the reception desk, have a seat in the waiting room. When they are almost ready for you, the therapists will ask you to change. They will escort you into the treatment room and help you lie on the table. Once you are properly positioned, the therapists will leave the room, close the door, and begin the treatment. You will not see or feel the radiation. You may hear the machine as it moves around you and is turned on and off. You will be in the treatment room 10 to 30 minutes, depending on the complexity of your treatment. Most of this time will be spent positioning you correctly. The actual treatment only takes a few minutes.

Although you are alone during the treatment, the therapists can see you on a monitor and hear you through an intercom at all times. Breathe normally during the treatment, but do not move. If you are very uncomfortable and need help, speak to the therapists. They can turn off the machine and come in to see you at any time, if necessary.

Some patients are treated with radiation twice a day. The treatments are generally scheduled six hours apart. If you are going to stay in the department for the day, your nurse will show you where you can rest while waiting for your second treatment.

Weekly Visits During Treatment ("Status Checks")

Your radiation oncologist oversees your entire treatment. He or she will see you each week with your nurse to evaluate your response to treatment. This visit will be before or after your treatment each _____. Expect to be here about one extra hour that day. This visit is a good time to ask questions and discuss any concerns you have. If you need to speak with your doctor or nurse any time between these weekly visits, ask the support staff or therapists to contact them when you come in for treatment.

Side Effects During Treatment

Some people develop side effects from treatment. The type and how severe they are depend on many factors. These include the dose of radiation, the number of treatments, and your general state of health. Side effects may be worse if you are also having chemotherapy. Below are the most common side effects of lymphoid irradiation. You may have all, some, or none of these.

Many patients ask about vitamins. You may take a daily multivitamin if you wish. Do not take more than the recommended daily allowance of any vitamin. Do not take any supplements unless your doctor approves them. This includes both nutritional and herbal.

Skin Reaction

During the course of radiation therapy, you will notice changes in the skin and hair in the area being treated. These are normal and expected. After two or three weeks, your skin will become pink or tanned. As treatment continues, it may become bright red or very dark. Your skin may also feel dry and itchy, and it may look flaky. You may notice a rash, especially in any area where you have had previous sun exposure. Although this may be a side

effect of treatment, a rash could be a sign of infection. If you develop a rash at any time during your treatment, tell your doctor or nurse so that you can be evaluated.

Sometimes the skin in sensitive areas, such as your earlobes, your armpits, or near the collar bone may blister, open, and peel. If this occurs, tell your doctor or nurse. Your nurse will apply special dressings or creams and teach you how to care for your skin. Your doctor may stop your treatment until the skin heals. The skin reaction sometimes becomes more severe during the week after treatment is done. If this happens, call your doctor or nurse. The skin reaction will gradually heal, but this often takes three or four weeks.

You may also lose some or all of the hair in the area being treated. If you are getting radiation to your neck area, the hair at the nape of your neck will fall out. The hair will usually begin to grow back two to four months after treatment is completed. It will be completely grown in within six to 12 months.

Below are guidelines to care for your skin during treatment. Continue these until the skin reaction resolves. These refer to the skin **only in the area being treated**.

Keep Your Skin Clean

- Bathe or shower daily using warm water and a mild unscented soap. Examples of soaps you may use include Dove®, Basis®, and Cetaphil®. Rinse the skin well, and pat dry with a soft towel.
- When washing, be gentle with your skin in the area being treated. Do not use a washcloth or a scrubbing cloth or brush.
- The tattoo marks are permanent and will not wash off. You may get other markings during treatment, for example a purple felt-tipped marker outline of your treatment area. Use mineral oil to remove these lines when the therapists tell you they can be washed off. Do not use alcohol or alcohol pads on the skin in the area being treated.

Moisturize Your Skin

- Start using a moisturizer when you begin treatment. This can help to minimize the skin reaction. There are a few over-the-counter moisturizers you can use: Aquaphor®, Eucerin®, or a pure aloe vera gel. There is no evidence that one is better than another. There are a number of other products that are also good to use, and your nurse may recommend one of these to you. Use only one at a time unless your nurse tells you to use more. Please note that using aloe vera directly from the plant is more likely to result in allergic reactions than using a pure aloe vera gel. We recommend that you do not use it.
- Apply the moisturizer two times a day. Your nurse will tell you if you need to do it more or less often.
 - If you are treated in the morning, apply it:
 - After your treatment, and
 - Before you go to bed.
 - If you are treated in the afternoon, apply it:
 - In the morning, at least 4 hours before your treatment, and
 - Before you go to bed.
 - On the weekends, apply it:
 - In the morning, and
 - Before you go to bed.
- Do not wash off the moisturizer before your treatment. It could irritate your skin.

Avoid Irritating the Skin in the Area Being Treated

- Use **only** the moisturizers, creams, or lotions your doctor or nurse recommend.

- Do not use make-up, perfumes, or powders in the area being treated.
- Do not use any deodorants in the area being treated other than Toms of Maine®, cornstarch, or crystals obtained from a health food store. Stop these if your skin becomes irritated.
- Don't shave the treated skin. If you must shave, use only an electric razor. Stop if the skin becomes irritated.
- If your skin is itchy, don't scratch it. Tell your nurse so he or she can recommend how to relieve the itching.
- Do not use any tape on treated skin.
- Avoid applying extreme heat or cold to the treated skin. This includes hot tubs, water bottles, heating pads, and ice packs.
- If you have no skin reaction, you may swim in a chlorinated pool. However, be sure to rinse off the chlorine immediately after you leave the pool.
- Avoid tanning or burning your skin during treatment and for the rest of your life. If you are going to be in the sun, use a PABA-free sunblock with an SPF of 30 or higher. Wear clothing that covers you as much as possible.

Fatigue

Most people develop fatigue after two or three weeks of treatment. People commonly describe their fatigue as:

- Tiredness,
- Weariness,
- Lack of energy,
- Weakness, and
- Being unable to concentrate.

This gradually goes away after your treatment is done, but it may last several months.

There are a number of reasons people develop fatigue during treatment:

- The effects of radiation on the tissues,
- Making trips for treatment each day,
- Not having enough restful sleep each night,
- Not eating enough protein and calories,
- Having pain or other symptoms, and
- Feeling anxious or depressed.

Some people find that their fatigue is worse at certain times of the day and that they have more energy at other times. Below are suggestions to help you manage your fatigue.

- If you are working and are feeling well, we encourage you to keep working during treatment if possible. However, you may find that working shorter hours will help you feel less tired.
- Plan your daily activities. Pick those things that are necessary and most important to you and do them when you have the most energy.
- Plan time to rest or nap for short periods during the day, especially when you feel more tired. You may also find it helpful to go to sleep earlier at night and get up later in the morning.
- Ask family and friends to help you with things such as shopping, cooking, and cleaning.
- Some people find exercise increases their energy level. Ask your doctor if you can do light exercise, such as walking.

- Eat foods high in protein and calories.
- Ask your doctor or nurse for help with other symptoms you may have. Some people have pain or nausea, feel depressed or anxious, or cannot sleep well.

Bone Marrow Suppression

Bone marrow is the substance inside bone that produces blood cells. There are three main types of blood cells. White blood cells fight off infection, platelets help your blood to clot, and red blood cells carry oxygen needed for energy. When large areas of bone marrow are in the area being irradiated, it can affect the production of blood cells. Your blood cell counts may go down. We will monitor you throughout treatment with a blood test called a CBC (complete blood count). If your counts drop, we may stop your treatment until they return to higher levels. We will tell you what precautions to take. Call your doctor or nurse immediately if you develop:

- A fever of 100.5° F (38° C) or greater,
- Shaking chills,
- Flu-like symptoms, or
- Bleeding.

You may need to be evaluated to see if you have an infection.

Loss of Appetite

Some people find that their appetite decreases during treatment. Your body needs protein and calories. They help repair the normal cells injured from radiation. Try not to lose weight during your treatment. Also, if you have a mold to position you for treatment, it may not fit correctly if your weight changes. Below are suggestions to help you maintain your weight.

- Be selective about what you eat to be sure you increase your calories and protein. We will give you the booklet *Eating Well During and After Cancer Treatment*. It contains many suggestions. Try the different foods that are recommended.
- Try to eat small meals often throughout the day. If you never seem to feel hungry, set up a schedule to ensure you eat regularly, for example every two hours.
- Eat your meals in a calm place and take your time. Eat with family or friends whenever possible.
- Vary the color and texture of foods to make them more appealing.
- Bring snacks and drinks with you when you come for treatment. You can have these while you are waiting or while you are coming to and from the department each day.
- Liquid nutritional supplements can be taken if you are not eating enough food. There are many products available, and they come in many flavors. Ask your doctor or nurse which product is best for you.

Sexual Issues

- There is nothing radioactive inside your body. You do not need to avoid close contact with other people.
- You do not have to change your sexual activity unless your doctor gives you specific advice. However, if you are in the childbearing years, you must use contraception so you or your partner will not get pregnant during your treatment.
- You may have concerns about the effects of radiation on your ability to have a child. See the section on possible late effects of lymphoid irradiation on page 12. Many women can have an operation to move their ovaries out of the treatment area. Men may be able to bank their sperm. Speak to your doctor **before** you begin treatment if you want more information about these options.

- You may have concerns about the effects of cancer and your treatment on your sexuality. An excellent resource is the booklet *Sexuality and Cancer*. There are two versions, one for men and another for women. You can get a copy from the American Cancer Society. Call 1-800-ACS-2345 and tell them which one you want.
- MSKCC has a *Sexual Health Program* to help patients address the impact of their disease and treatment on their sexuality. You can meet with a specialist before, during, or after your treatment. Call 212-639-8480 to make an appointment.

Emotional Concerns

Having cancer is likely to cause you and the people who care about you to react in many ways. You may feel:

• Anxious	• Worried	• Numb
• Nervous	• Afraid	• Ambivalent
• Down	• Alone	• Angry
• Depressed		

All these feelings are expected if you or someone you love has a serious illness.

You may also worry about telling your employer that you have cancer or about paying your medical bills. You may worry about how your family relationships may change, about the effect of cancer or treatment on your body, and if you will continue to be sexually attractive. You may worry that the cancer will come back. When people try to protect each other by hiding their feelings, they can feel very alone. It might help to talk about your feelings. Talking can help the people around you know what you are thinking. It can bring you closer at a time when support is so needed.

Each of us has our own way of responding to difficult situations. Generally we use whatever has worked for us in the past. However, sometimes this is not enough. We encourage you to speak with your doctor, nurse, and social worker about your concerns.

Site-Specific Side Effects

In addition to the general side effects, you may have side effects related to the area being treated. Your nurse will mark those that you may develop.

Mouth Changes

You may notice changes in your mouth. These are expected, although each person reacts differently. After two weeks, the membranes lining your mouth and throat may begin to feel tender, and you may feel a burning sensation or feel more sensitive to hot and spicy foods. You may also feel discomfort when you swallow. Your mouth will gradually heal after treatment is completed, but this may take four weeks.

If your salivary glands are included in the treatment area, you may notice mouth dryness and thicker saliva at some point during treatment. The taste of food may change, and it may be harder to swallow. Even talking can be affected. These symptoms will begin to improve about three months after your treatment is completed.

If your salivary glands are included in the treatment area, you must see a dentist before you begin treatment. The dentist will check your teeth for problems and do any work that may be needed. The dentist will also prescribe a toothpaste that contains fluoride. It will help prevent dental cavities.

You must take special care of your mouth while you are receiving radiation therapy.

Care of Your Mouth

- Brush your teeth after eating and at bedtime with a mild toothpaste that contains fluoride (e.g., Biotene®). Use a soft-bristle toothbrush.

- If you use dentures, remove and clean them each time you clean your mouth.
- If you currently floss your teeth, continue to floss unless or until your gums become tender or bleed. If you have not flossed in the past, do not begin now.
- Rinse your mouth four to six times a day. Swish for one minute, gargle, and then spit out the solution. You can use any of the following solutions:
 - One quart water mixed with one teaspoon salt and one teaspoon baking soda (sodium bicarbonate) (or one quart normal saline with one teaspoon baking soda),
 - One quart water mixed with one teaspoon salt,
 - One quart water mixed with one teaspoon baking soda (sodium bicarbonate),
 - Water, or
 - Non-alcoholic unsweetened mouthwash (eg, Biotene® Mouthwash).
- Do not use commercial mouthwashes. They contain alcohol, which will irritate your mouth.
- Apply a moisturizer (e.g., Aquaphor®) to your lips four to six times a day. Do not apply it within four hours of your radiation treatment.
- Avoid substances that may irritate your mouth and throat, such as:
 - Very hot foods and fluids,
 - Dry, hard, and coarse foods (e.g., chips, pretzels, crackers, raw vegetables),
 - Spices (e.g., pepper, chili, horse radish, Tabasco® sauce, curry),
 - Acidic or citrus foods and juices (e.g., orange, grapefruit, lemon, lime, pineapple, tomato),
 - Alcohol, or
 - Tobacco.
- Let your doctor or nurse know if you start having pain or difficulty swallowing. Sucking on throat lozenges will often help. We can also prescribe medicine to make you more comfortable.

Getting Adequate Nutrition During Treatment

- Follow a well-balanced diet. Make sure to get plenty of calories and protein throughout your treatment. Eating well will help you maintain your weight, promote tissue healing, and help you feel better during your treatment.
- If you have pain in your mouth or throat or are having difficulty swallowing:
 - Eat soft, moist, bland foods taken in small bites and chewed well, and use sauces and gravies to soften food.
 - If necessary, try blenderized or pureed foods. Liquid nutritional supplements are also helpful. There are many products available, and they come in a variety of flavors. Speak with your doctor or nurse about how to select the product that will be best for you.

Dealing with a Dry Mouth During and After Treatment

- Try mouth moisturizers and artificial saliva to help relieve the dryness.
- Take frequent sips of water or other liquids throughout the day. You may find it helpful to carry a thermos or water bottle with you.
- Use an aerosol pump spray bottle to moisten your mouth throughout the day.
- Use a humidifier at home, especially at night. Be sure to change the water and clean it as directed.

- Avoid the use of air conditioning.
- Rinse your mouth to provide moisture before eating.
- Use gravies and sauces to prepare your food, and drink fluids while eating dry foods such as rice or bread. These will make it easier to swallow food despite the decreased saliva.

Cough

Some people develop a dry cough because the radiation may irritate the lining of the airways in your lung. We do not expect you to develop shortness of breath or fever. If you develop these symptoms, tell your doctor.

Do not smoke during your treatment or for the rest of your life. Smoking will irritate the lining of your airway and cause more coughing. If you would like help to stop smoking, your nurse can refer you to a smoking cessation program.

Pain or Difficulty with Swallowing or Heartburn

If your throat and/or esophagus are in the area being treated, they may become inflamed. This causes difficulty or even pain with swallowing. Some people also get heartburn. These side effects may begin the second or third week of treatment and can last two weeks after treatment is done. Follow the suggestions below. They will help to minimize discomfort and ensure that you get adequate nutrition during your treatment.

- Avoid things that may irritate your throat and esophagus, such as:
 - Very hot foods and fluids,
 - Dry, hard, and coarse foods (e.g., chips, pretzels, crackers),
 - Spices (e.g., pepper, chili, Tabasco® sauce, curry),
 - Acidic or citrus foods and juices (e.g., orange, grapefruit, pineapple, tomato),
 - Food or drinks with caffeine (e.g., coffee, tea, cola, chocolate),
 - Alcohol, and
 - Tobacco.
- Take small bites of food and chew well before you swallow.
- If you have pain in your throat or difficulty swallowing, eat soft, moist, bland foods in small bites and chew well. Use sauces and gravies to soften food.
- If necessary, try blenderized or pureed foods. Liquid nutritional supplements are also helpful. There are many products available, and they come in a variety of flavors. Speak with your doctor or nurse about how to select the product that will be best for you.
- Cold foods and liquids may be helpful. Some people find that fruit nectars are particularly soothing.
- If you are having trouble swallowing pills, ask your doctor or nurse if the medicine comes in liquid form. If not, many pills can be crushed and taken with applesauce. However, check with your doctor, nurse, or pharmacist. Crushing some medicines affects their action. Ask if you can open a capsule and empty the contents into applesauce.
- If you are having heartburn, do not eat at bedtime. Sit upright for at least 30 minutes after each meal. This helps to prevent stomach juices from flowing back into your esophagus.

- Let your doctor or nurse know if you have trouble swallowing or have heartburn. Medicine can be prescribed to make you more comfortable.

Nausea

Some people experience nausea, with or without vomiting some time during treatment. This may occur as early as the first treatment. If you have nausea or vomiting, tell your doctor or nurse. Medicine can be prescribed to relieve this. A change in your diet may also be helpful. Below are suggestions to help reduce your nausea and ensure you take in adequate food and fluids.

- Eat a light meal before your treatment.
- If you feel nauseated, nibble often on the dry starchy foods listed below. Have small frequent meals all day. Some people also find ginger tea helpful as long as there are no sores in your mouth.
- Drink only a small amount of liquids with your meals to prevent feeling full or bloated.
- Sip liquids between meals throughout the day. Using a straw may help. Try freezing your favorite beverages in ice cube trays and sucking on these during the day.
- Select foods that will not cause nausea. Foods that are usually well tolerated include:
 - Foods at room temperature or cooler,
 - Liquids that are cooled or chilled,
 - Dry, starchy foods such as toast, soda crackers, melba toast, dry cereal, pretzels, and angel food cake,
 - Yogurt, sherbet, and clear liquids (e.g., apple juice, Jell-O®, ginger ale),
 - Cold chicken or turkey, baked or broiled, with the skin removed, and
 - Soft fruits and vegetables.
- Avoid foods and liquids that may increase nausea. These include:
 - Hot foods with strong odors,
 - Spicy, fatty, greasy, and fried foods,
 - Very sweet foods,
 - Acidic or citrus foods and juices (e.g., orange, grapefruit, pineapple, tomato), and
 - Alcohol.

Diarrhea

Some people develop changes in their bowel movements. This can begin the first few weeks after treatment begins. You may have more bowel movements and softer stools. Some people may develop diarrhea (increased watery stools). Below are guidelines to help you manage these problems during treatment. Start these if you have symptoms and continue until your bowel movements return to your usual pattern. This may take two to four weeks after your treatment is done.

- Follow a diet that is low in fiber, fat, and lactose. Your nurse will give you a booklet describing this diet in detail. Continue the diet until your bowel movements return to your usual pattern. This may take several weeks after your treatment is completed. You can then slowly reintroduce foods from your usual diet.
- Drink increased fluids to replace some of the water and salts you lose in the stool. Try to drink two to three quarts of liquids throughout the day. Select fluids such as diluted Gatorade®, non-fat soup broth, Pedialyte®, and diluted juices and nectars. Limit fluids with caffeine (e.g., coffee, tea, colas), as they can further dehydrate you.
- Eat bananas and potatoes without the skin. They help replace important salts you may lose with diarrhea.
- Avoid any food or fluid that makes your symptoms worse.

Take medicine for diarrhea. You can buy Imodium® without a prescription. Your doctor may prescribe other medicines.

Possible Late Effects of Lymphoid Irradiation

Lymphoid irradiation may cause side effects many months and even years after your treatment is completed. These depend on the area that was treated. Your nurse will mark those that you may develop.

- Irradiation to the neck may cause a decreased functioning of the thyroid gland. During your follow-up visits your thyroid function will be checked with a blood test. This will let us detect changes early, before you develop any symptoms. You will be referred for evaluation and treatment if needed. Some patients need to take a low dose thyroid pill daily.
- Five to 10 percent of people treated to the neck experience a tingling that extends down their arms and legs when they bend their neck forward. This sensation is known as *Lhermitte's Syndrome*. It has no medical significance and resolves on its own.
- Shingles can occur within one to two years after treatment. It appears as a chickenpox-like rash. It can occur anywhere on your body, but is usually limited to only one area. Call your doctor or nurse immediately if you develop a rash like this, even if it is in only a small area. Shingles can be controlled with oral medicine.
- Radiation injury to the heart and blood vessels around the heart is rare. It occurs in less than one of 100 patients. The lining surrounding the heart may become inflamed. This is treated with anti-inflammatory medicine. Increased risk of coronary artery disease is another possible effect of radiation. Because of this, it is important to reduce as many risks for heart disease as you can. Do not smoke. Eat a low cholesterol diet. Keep your weight within a healthy range. We can refer you to a smoking cessation program and dietitian to help you.
- Radiation pneumonitis is an inflammation of the lungs. It occurs in less than five of 100 people. It can develop one to three months after treatment is done. Symptoms can be a cough, a low fever, and shortness of breath. It is treated successfully with steroid medicine taken for a limited period of time. Call your doctor or nurse if you get any of these symptoms.
- Radiation to the pelvis may affect fertility and hormone production.
 - **For women:** If your ovaries are in the area being treated, they will be affected. If you are premenopausal at the time you begin radiation therapy, your periods will stop. Menopause will begin after treatment. You may not be able to get pregnant. Many women can have an operation to move their ovaries out of the treatment area. This may increase your chance of having children. Discuss this with your doctor. If you develop hot flashes, trouble sleeping, or mood swings, we can refer you to a specialist to learn about the treatment options.
 - **For men:** If your testes are in the area being irradiated, their function may be affected as soon as treatment begins. If you want to have children in the future, let your doctor or nurse know. You may be able to bank your sperm. This needs to be done before treatment begins.

All treatments for lymphoma increase your risk of having other cancers. The increased risk of developing lung cancer is seen mostly in people who smoke. If you smoke, ask about a smoking cessation program. Women under the age of 30 have an increased risk of developing breast cancer. This risk depends on age, radiation dose, and how much breast tissue is exposed. Most modern treatments avoid the breast or deliver only low dose radiation to the breast. Your doctor will discuss your specific risk with you. We will advise you about when to start having mammograms. Early stage breast cancer is often cured.

After You Complete Treatment

It is important that you keep your follow-up appointments. This will let us evaluate your response to treatment. You may have blood tests, x-rays, and scans during these visits. Before coming, write down your questions. Bring this and a list of all your medicines. If you are running low on any medicine, let your doctor know before you run out. Call your doctor or nurse at any time after your treatment is completed or between follow-up visits, if you have any questions or develop any problems.

Conclusion

We hope this booklet has been helpful. If you have any questions, please speak with your radiation oncologist or nurse. Below are important telephone numbers.

Monday to Friday 9AM to 5PM

Radiation Oncologist _____

Telephone _____

Radiation Nurse _____

Telephone _____

If you have any problems that must be addressed in the evenings or over the weekend, please call
_____ and ask for the radiation oncologist on call.



Memorial Sloan-Kettering
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