



Total Body Irradiation (TBI)

About your treatment

Total body irradiation (TBI) is part of your cancer treatment. Review the information in this handout. It can help you to know what to expect before, during, and after your treatment.

What is total body irradiation (TBI)?

TBI is sometimes given to patients to prepare them for a Hematopoietic Stem Cell Transplant (HSCT), or bone marrow transplant. TBI is delivered by a machine called a *linear accelerator*. This machine produces a high-energy radiation beam that is directed at your entire body. You cannot see or feel this beam, and the radiation does not stay in your body. You will not be radioactive after treatment.

TBI, along with chemotherapy, is used to destroy diseased cells in your body, blood, and bone marrow. It may also be used to suppress or lower your immune system to allow the new bone marrow to *engraft* (grow).

Getting Ready for Treatment

Before you start treatment, you will meet with a doctor who is a *radiation oncologist* and the radiation oncology resident or nurse practitioner who works with the doctor. The radiation oncologist will discuss the treatment and possible side effects. This doctor will also coordinate a visit that simulates your treatment.

At your simulation visit, your doctor will work with a *radiation dosimetrist* and therapist. The therapist will place you in the position in which you will be treated, and take measurements and X-rays of your lungs. Your doctor will use these measurements to prescribe your radiation. The measurements taken at this simulation will also be used to make *lung blocks*, which will protect a large portion of your lungs during treatment.

You will not receive radiation treatment at this simulation visit. You may be able to see the treatment room, and a nurse will talk to you and answer any questions you may have.



Treatment stand for TBI.

The TBI Treatment

TBI can be given as a one-time treatment, or twice a day for 3 or 4 days. Each treatment takes about 1 hour, which includes set-up as well as delivery of the radiation. The radiation delivery time is only about 20 to 30 minutes, depending on your body size. It is administered by the radiation therapists as ordered by your doctor.

A therapist and a nurse will be with you for each treatment. Your doctor will also meet briefly with you once during your TBI treatment.

Most patients are treated in a standing position on a treatment stand with a plexiglass shield (see photograph at left). Children who require anesthesia will be treated lying down. Treatment is given in divided doses, evenly distributed between the front and the back of your body.

Most patients will have some treatments with lung blocks. Lung blocks are specially made for each patient, based on measurements taken at the simulation visit. Lung blocks attach to the plexiglass frame in front of the patient and help to protect the lungs from some of the radiation dose. To line up the lung blocks in the same position for each treatment, the therapist will draw lines on your skin with a marker. Do not wash these marks off until the therapist tells you they are no longer needed.

While you are receiving your treatment, you will be alone in the room. The staff will be able to see you through a television camera, and can hear you and speak to you through an intercom. Most people find it helpful to have something they can use as a distraction during the treatment. A stereo and music are available, and you can bring in your own music or recording on CD or cassette.

Side Effects of TBI

As with chemotherapy, TBI may have short-term side effects. The side effects can occur during treatment. Ask your treatment nurse to help you manage any side effects that occur.

Radiation treatment can also cause side effects that may arise after your treatment is done. Your doctor will talk with you about these possible side effects when you give consent for treatment.

Most Common Side Effects of TBI

Nausea

- The day before you begin your TBI treatment, your Seattle Cancer Care Alliance (SCCA) clinic nurse will review the anti-nausea medicines you will need to take 1 hour before each treatment.

- Nausea most often occurs 30 minutes to 2 hours after TBI, although it may also occur during treatment. You will be started on medicine to keep nausea from being too much of a problem.
- You will also be given anti-nausea medicines to be taken as needed after treatment.
- Bring your anti-nausea medicines with you to each of your TBI appointments.

Loss of Appetite

- Loss of appetite most often happens as treatment progresses. It is linked to underlying nausea.
- Tell your nurse if your appetite changes. You may be given additional medicines to treat the nausea.

Dehydration

- TBI can cause dehydration, much like what would occur if you were exposed to the sun for too long.
- Before your first TBI appointment, you will meet with an SCCA dietitian who will tell you how much fluid you need to drink each day. If you are unable to drink enough fluid because of nausea, this can increase dehydration. Tell your SCCA team nurse if you are not able to drink all of your daily fluid.
- To reduce dehydration, you may be started on IV fluids, to be taken each day during TBI. These fluids are given by a portable pump, which is easily carried with you.

Skin Sensitivity

- TBI acts as a heat source, even though you will not feel this right away. Precautions are taken to avoid skin reactions during treatment.
- After radiation therapy, you may notice that your skin appears flushed or darker. Your skin will be more sensitive, especially to sunlight.
- The nurse will check your skin condition each day of treatment.
- To reduce skin reactions:
 - Wear loose-fitting clothes to your TBI appointment.
 - When you arrive at the clinic, you will be given hospital pajamas to put on. At this time, you must remove all undergarments, socks, shoes or slippers, and jewelry.

Questions?

Call 206-598-4141

Your questions are important. Call your doctor or health care provider if you have questions or concerns. UWMC clinic staff are also available to help at any time.

UWMC Radiation
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206-598-4100

- The clamp holding your central venous catheter will be taken off to avoid metal touching your skin.
- If you wear eyeglasses or contact lenses, you will need to remove them during treatment.
- **DO NOT** use lotion, deodorant, cream, or powder on your skin for the duration of your TBI, unless it is given to you by your radiation nurse.

Alopecia

- Your hair will fall out after treatment. This happens over a span of about 2 weeks. Your hair will regrow.

Parotitis

- Parotitis is swelling of the parotid glands, which are located near and in front of the ears. Parotitis is not common, but has been seen in TBI patients.
- Symptoms occur 4 to 24 hours after the first treatment. Ice packs and Tylenol help to relieve the discomfort from the swelling. Check with the SCCA clinic before taking any Tylenol.
- Symptoms resolve 24 to 72 hours after the completion of TBI.

Diarrhea

- Diarrhea usually develops within the first week after TBI and can be treated with medicines. Tell your nurse if it occurs.

Mucositis

- TBI and chemotherapy affect the glands that secrete mucous and the fast-growing cells that line the mouth and throat. Your mouth and throat may feel dry, swollen, and painful.
- Most patients get mucositis within the first 2 weeks after TBI.
- Mucositis is treated with saltwater rinses, topical medicines, and pain medicines.

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