



## FACTS ABOUT BRAIN METASTASIS

- Brain **metastases** are clusters of malignant or cancerous cells that have spread from another part of the body to the brain.
- About 170,000 people will be diagnosed with brain metastases in 2012 making it more common than many primary tumors, such as primary brain tumors (62,000 cases), lymphoma (79,000) or colon cancer (103,000).
- It is common to say a person has “brain cancer” when the cancer has spread to the brain from another part of the body. However, with brain metastases, instead of having both brain cancer and breast cancer, a person has breast cancer that has spread to the brain.
- The most common cancers that spread to the brain are lung cancer, breast cancer and melanoma. However, just about any cancer can spread to the brain.
- Cancer treatments have become more advanced in recent years, allowing many patients to live longer with the disease than ever before. Unfortunately, brain metastases still occur in many patients sometimes months or even years after their original cancer treatment. There are many treatment options available for patients with brain metastases.

## SYMPTOMS AND SIGNS OF BRAIN METASTASES

- Sometimes you have no obvious symptoms or signs that the cancer has spread to the brain. Rather, you may come in for a routine follow-up visit and the cancer is found during exams or on imaging scans.
- Possible common symptoms include headaches, dizziness, nausea, blurred or double vision, memory and/or personality changes, or speech changes.
- Sometimes changes in nerve function may cause numbness or a weakness in part of your body; problems with balance can also occur.
- If you begin to have these symptoms, call your doctor. These symptoms can also indicate other health issues that may need immediate medical attention.



## TREATING BRAIN METASTASIS

**Treatment for brain metastases can control symptoms and improve quality of life. In some cases these treatments can also help you live longer with your cancer.**

### Radiation Therapy

Radiation therapy, also called **radiotherapy**, is effective for treating some brain metastases. Unlike chemotherapy, radiation therapy's effectiveness is not limited by the blood brain barrier and can penetrate the brain to kill cancer cells. For brain metastasis, radiation may provide a better quality of life, longer life or both.

### Surgery

Sometimes, **surgery** can help manage symptoms, such as relieving pressure in the brain. Surgery also helps doctors confirm that the tumors in the brain are really brain metastases. Surgery is often considered if you have a single brain metastasis.

### Chemotherapy

Literally meaning “drug treatment,” **chemotherapy** is medication used to kill the cancer cells. Traditionally, chemotherapy has a limited role in treating brain metastases due to the blood-brain barrier, which restricts what can travel from the blood into the brain. This protective barrier prevents many chemotherapy drugs from entering the brain. However, newer drugs may be able to pass through this blood brain barrier to help control the brain metastases.

In most cases, patients with metastases will not be “cured” of their cancer. However, modern treatments including radiation therapy allow doctors to control the brain metastases, enabling many patients with cancer that has spread to live months to years longer with their cancer. The duration of survival time will depend on where the original cancer came from, where else it has spread and how well it responds to treatments rather than on the actual number of brain metastases. Also important is how well controlled the cancer is outside of the brain.

## EXTERNAL BEAM RADIATION THERAPY FOR BRAIN METASTASIS

Radiation therapy is the use of various types of radiation to safely and effectively treat cancer and other diseases. The radiation beam usually comes from a machine called a **linear accelerator**, or **linac**. The radiation beam is painless and treatment itself lasts only a few minutes. In most cases the beam is made of high-energy **X-rays**, but sometimes specialized approaches may be used.

Before beginning treatment, you will be scheduled for a planning session to map out the area that your radiation oncologist wishes to treat. This procedure is called a **simulation**. Simulation involves having X-rays and/or a **CT scan**. Usually, a plastic custom mask is made to keep you in position during treatment.

Often, the whole brain is treated. When the whole brain needs radiation treatments for brain metastases, treatments are usually given daily, Monday through Friday, for two to three weeks.

In some cases, a single high-dose radiation treatment called **stereotactic radiosurgery** can be used. With stereotactic radiosurgery, doctors only target a small part of the brain with X-rays or less commonly protons, another particle used that is effective and precise. Sometimes combining both stereotactic radiosurgery with whole brain radiation therapy can be helpful.

Tailoring each of the radiation beams allows doctors to target more of the cancer cells while sparing nearby organs, such as the eyes and normal brain.

## POSSIBLE SIDE EFFECTS

- Fatigue is the most common side effect. Feeling tired often starts in the middle of the treatment and may last several weeks after your last radiation session.
- Radiation therapy to the brain can cause scalp irritation and muffled hearing.
- It is normal for you to lose the hair on your head where the radiation beams were aimed. It will probably grow back, but it may not be exactly as it was before treatment.
- Radiation may cause some short-term memory loss, but any serious nerve injury is rare.
- If you notice a funny whole body skin tingling or rash, contact your doctor right away. For brain tumors, this uncommon symptom may be a sign of an allergic reaction if you are taking anti-seizure medicine.

Ask your radiation oncologist about what you can expect and what the risks and benefits of each treatment are. Side effects are different for everyone. The radiation oncologist and nurse will follow you closely during treatment and ask you and your family members about any symptoms.

You may be prescribed a medication called a steroid to lessen or prevent symptoms. This is sometimes given before treatment starts. Other medications also may help.

Please do not delay in talking to a radiation oncologist or oncology nurse about any side effects or concerns about treatments. They want to help you and your caregivers be as comfortable as possible.

## PATIENT CARE DURING TREATMENT

- You should try to get as much rest as possible.
- Coping with cancer may be easier with good support from family and friends. You may want to consider asking your doctor or nurse about support groups in your area that may also help.
- It is important to follow the doctor's orders and ask a lot of questions. There are no silly questions; often the treatment team has heard similar questions.
- You and your family should ask the doctor if it's safe for you to drive.
- It is important to tell your doctor about any medications or vitamins you are taking to make sure they are safe to use during radiation therapy.
- Try to eat a balanced diet. The doctor, nurse or dietician can help suggest foods if you are having trouble eating or if food tastes funny.
- The area exposed to radiation must be treated with special care. This includes staying out of the sun, avoiding hot and cold packs, cleaning the area with warm water and mild shampoo (such as baby shampoo), and using lotions and ointments only after checking with your doctor or nurse.

