Radiation Therapy for **Brain Metastases**

Metastatic brain tumors are the most common brain tumor in adults. It is estimated that 200,000 new cases of brain metastases are diagnosed in the U.S. each year.

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FACTS ABOUT BRAIN METASTASIS

- Brain metastases are different from primary brain cancer. Primary brain cancer happens when normal cells in the brain change into abnormal cells. Brain metastases occur when cancer cells move from another part of the body to the brain.
- Brain metastases can occur months and even years after cancer diagnosis, so it is important to maintain regular follow-up with your health care provider.
- 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.
- There are many treatment options available for patients with brain metastases. Cancer treatments have become more advanced in recent years, allowing many patients to live longer with cancer than before.

SIGNS AND SYMPTOMS OF BRAIN METASTASES

- Sometimes you have no obvious signs or symptoms 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 an exam or on imaging scans.
- Possible symptoms of brain metastases include headaches, dizziness, nausea, blurred or double vision, memory and/or personality changes, or speech changes.
- Sometimes nerve function changes may cause numbness or 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.
- If you doctor thinks you may have brain metastases, they will likely order an imaging test of your brain called an MRI, which can help identify if brain metastases are present.

TREATING BRAIN METASTASES

Treatment for brain metastases can help control symptoms and improve quality of life. In some cases, these treatments may also help you live longer with your cancer. Treatment depends on many factors, including your symptoms, how far cancer has spread in your body, your overall health and prognosis. Treatment can include one or more of the following: Radiation Therapy, Surgery and Chemotherapy/Immunotherapy.

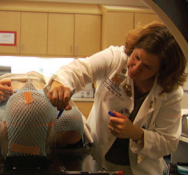
Surgery

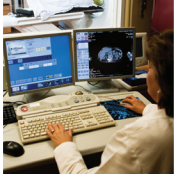
Sometimes, **surgery** can help manage symptoms, such as relieving pressure in the brain. Surgery also helps doctors confirm that the tumors in the brain are really brain metastases. Surgery is often considered if you have a single brain metastasis.

Medical Therapy (Chemotherapy and Immunotherapy)

Chemotherapy and immunotherapy are medications used to treat cancer. 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 such as **immunotherapy** may be able to pass through the blood-brain barrier to help control the brain metastases.

In most cases, patients with brain metastases will not be cured of their cancer. However, modern treatments including radiation





therapy allow doctors to control the brain metastases, giving many patients more time to live with their cancer. Survival time depends on where the original cancer came from, where else it has spread to and how well it responds to treatments.

Radiation Therapy

Radiation oncologists use radiation therapy to improve symptoms. Radiation therapy, sometimes called radiotherapy, uses radiation to treat cancer by damaging cells. When these cells die, they are no longer able to grow and the body naturally removes them. Radiation also damages healthy cells, but healthy cells can repair in a way that cancer cells cannot. Radiotherapy is effective for treating some brain metastases. Unlike chemotherapy, radiation therapy can cross the blood-brain barrier and kill cancer cells.

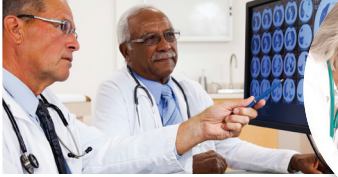
EXTERNAL BEAM RADIATION THERAPY FOR BRAIN METASTASES

Radiation oncologists use various types of radiation to safely and effectively treat cancer. In most cases radiation is delivered in the form of high-energy **X-rays**. Often, the whole brain is treated. When the whole brain is radiated treatments are usually given daily, Monday through Friday, for one to three weeks. In some cases, high-dose radiation treatment called **stereotactic radiosurgery** can be used to treat brain metastases. With stereotactic radiosurgery, doctors target only a small part of the brain with X-rays or protons. Sometimes combining both stereotactic radiosurgery with whole brain radiation therapy can be helpful. Before beginning treatment, you will be scheduled for a planning session to map out the treatment area. This procedure is called a **simulation**. Simulation commonly involves a **CT scan**. Usually, a custom plastic mask is made to keep you in position during treatment.

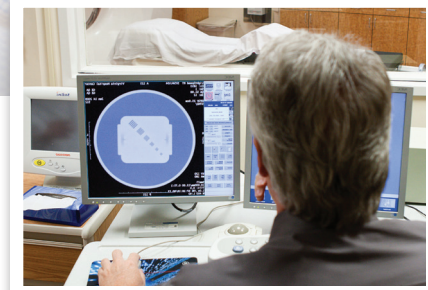
CARING FOR YOURSELF DURING TREATMENT

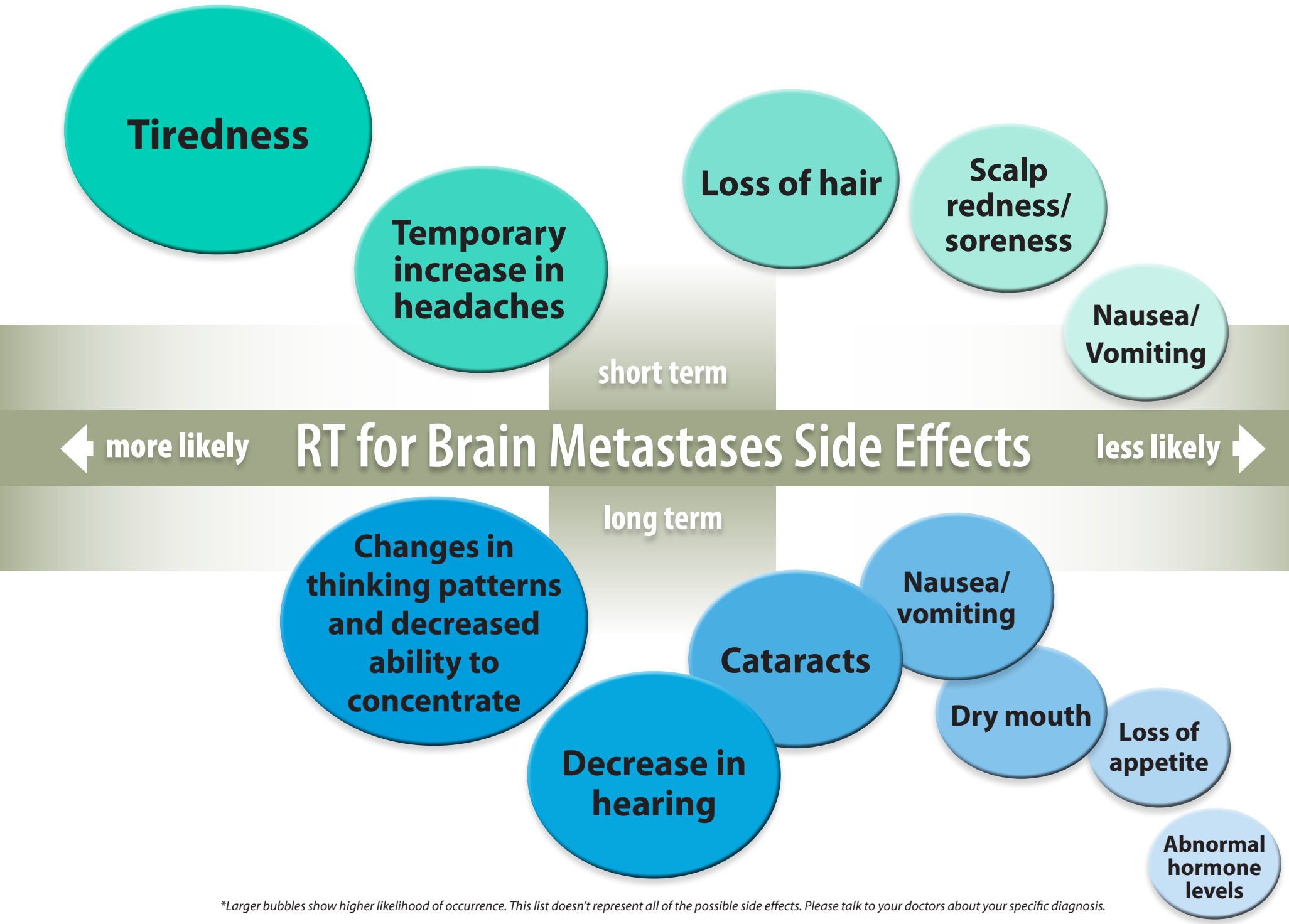
It is important to care for yourself during radiation therapy. A balanced diet, plenty of water, some physical activity and rest are all important during cancer treatment.

- Seek help from support groups and friends ahead of time. Having a support network in place before and during treatment will help you cope. If you need additional support, let your doctor and nurse know.



- Try to get as much rest as possible.
- Follow you doctor's orders. Ask if you are unsure of anything.
- You and your family should ask your doctor if it's safe for you to drive.
- Tell your doctor about any medications, vitamins or supplements you are taking to make sure they are safe to take during treatment.
- Try to eat a balanced diet. The doctor, nurse or dietitian can help suggest foods if you are having trouble eating or if food tastes funny.
- During and after radiation therapy, you must take special care of your skin. Stay out of the sun, avoid hot or cold packs, and use lotions or ointments only after checking with your doctor or nurse. Clean skin over the areas receiving radiation therapy with warm water and mild soap (such as baby shampoo).





*Larger bubbles show higher likelihood of occurrence. This list doesn't represent all of the possible side effects. Please talk to your doctors about your specific diagnosis.

ABOUT THE RADIATION ONCOLOGY TEAM

Radiation oncologists are doctors who specialize in the use of radiation therapy as a treatment for cancer. Other members of the treatment team include radiation therapists, radiation oncology nurses, medical physicists, dosimetrists, social workers and nutritionists. For information on what each does or to find a radiation oncologist near you, visit **www.rtanswers.org**.

ABOUT ASTRO

The American Society for Radiation Oncology is the largest radiation oncology society in the world with more than 10,000 members who specialize in treating patients with radiation therapies. ASTRO is dedicated to improving patient care through education, clinical practice, advancement of science and advocacy. Visit **www.astro.org** for more information.

AMERICAN SOCIETY FOR RADIATION ONCOLOGY
251 18th Street South, 8th Floor, Arlington, VA 22202
Phone: 703-502-1550 • Fax: 703-502-7852
www.astro.org • www.rtanswers.org

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