ABOUT BRAIN TUMORS

There are two general types of brain tumors: a primary tumor starts in the brain and can be benign (less likely to grow and/or invade the normal functioning brain) or malignant (more likely to grow and/or invade the normal functioning brain). Primary tumors in the brain or spinal cord can spread to distant organs. A metastatic tumor is caused by cancer elsewhere in the body that spreads to the brain. Metastatic tumors are always malignant.

This brochure is designed to address primary brain tumors. For information about radiation treatment for metastatic brain tumors ask your nurse or doctor for the brochure Radiation Therapy for Brain Metastases or go to www.rtanswers.org.

TREATING BRAIN TUMORS

If doctors determine that you have a brain tumor, the treatment options and prognosis are based on many factors including tumor type, location, and size of the tumor; grade (how aggressiveness it appears); molecular characteristics of your tumor; your age and overall health. Depending upon these and other factors, surgery, radiation therapy and/or medical therapy (chemotherapy) may be treatment options.

Radiation Therapy

Radiation therapy, sometimes called radiotherapy, is the use of high-energy X-rays or particles to safely and effectively treat brain tumors. Radiation works noninvasively within tumor cells by damaging their ability to grow. Healthy cells near the tumor may be affected by radiation, but they are able to repair themselves in a way tumor cells cannot. Radiation therapy can be used after surgery or in some cases instead of surgery. Ask your radiation oncologist about which radiation technique is best for treating your tumor.

Stereotactic radiosurgery (SRS) and stereotactic radiotherapy (SRT) are styles of radiation that are performed in certain situations, a stereotactic form of radiation may be recommended by your radiation oncologist or neurosurgeon to be used in addition to regular radiation, on its own or possibly instead of surgery. Some patients undergo the placement of a frame that attaches to the skull while some systems allow the use of a tight-fitting mask. The benefit of SRS/ SRT is that the total radiation dose (which can be a higher dose than standard radiation) is delivered in one to five treatment sessions with very little radiation to the surrounding healthy tissue. You can ask your doctor to learn more about stereotactic radiation and whether this technique will be a helpful part of your treatment.

Surgery

For many brain tumors, surgery is an important part of treatment. A neurosurgeon may perform a surgical biopsy to determine what kind of tumor you have. Sometimes only a part of the tumor can be safely removed in order to view the effects on your normal functioning, while other times all of the visible tumor can be safely removed. The extent of surgery is mainly based on the location of the tumor. Depending on your tumor, surgery may be the only treatment needed. However, radiation is often used after surgery to lessen the chances of the tumor coming back in the same place or growing in another part of brain. Ask your surgeon about the type and extent of surgery that is recommended for you.

Medical Therapy

Anti-cancer drugs known as chemotherapy may be given in addition to radiation to make treatment more effective or instead of radiation. Chemotherapy has the ability to destroy cancer cells by different methods. Depending upon the kind of drug best suited for your kind of brain tumor, chemotherapy may be given as a pill or through an intravenous (IV) line directly into your bloodstream on a set schedule. Chemotherapy can be given before, during or after radiation therapy. The type of chemotherapy you receive may be dependent on the molecular characteristics of your tumor. For more details about chemotherapy or other medications, ask your medical oncologist or neuro-oncologist which medications may be best for you.

Anti-angiogenic Therapy

For patients with high-grade primary brain tumors (glioblastoma multiforme or GBM) or primary brain tumors that come back after initial treatment, an external treatment device that delivers a low-voltage electric field around the tumor area may be part of your treatment plan. The tumor treatment fields (TFTs) made by this system prevents the growth of cancer cells and works in a different way than radiation and chemotherapy.

EXTERNAL BEAM RADIATION THERAPY

External beam radiation therapy usually involves a series of outpatient treatments with a machine called a linear accelerator, or linac. Similar to a chest X-ray, treatment X-rays cannot be seen or felt and the machine does not touch you. Treatments are given daily. Monday to Friday, usually over three to seven weeks.

Before beginning treatment, you will be scheduled for a planning session to make sure the effects on your normal functioning are lessened. Radiation involves a CT scan which is performed while lying on a table, usually with aid of a form-fitting mask to make sure treatment is delivered the same way each time. Your doctor will design an individualized treatment plan based on the results of the simulation scan together with other imaging studies you have completed including MRI. Marks are made on the mask to help the radiation therapist precisely position you for daily treatment.

Different techniques can be used to give radiation for brain tumors. Three-dimensional conformal radiation therapy (3-D CRT) combines multiple X-ray beam treatment positions and beam shapes to deliver precise doses of radiation to the brain. Tailing each of the radiation beams to the patient’s tumor allows coverage of the diseased cells while keeping radiation away from nearby organs, such as the eyes.

Intensity modulated radiation therapy (IMRT) is a form of 3-D CRT that further modifies the amount (intensity) and shape of the radiation within each of the radiation beams. At most centers, 3-D CRT (photon) or IMRT is used for treatment.

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CAREING FOR YOURSELF DURING TREATMENT

Battling cancer is tough. Seek out help from support groups and friends.

• Get plenty of rest during treatment, and don’t be afraid to ask for help.
• Follow your doctor’s orders. Ask if you are unsure about anything. There are no stupid questions.
• Tell your doctor about any medications, vitamins or supplements you are taking to make sure they are safe to use during radiation therapy.

Radiation side effects

• Avoid hot or cold packs; only use lotions and ointments after checking with your doctor or nurse; and clean the area with warm water and mild shampoo or baby shampoo.

Allow delivery of radiation a second time or a higher dose of radiation for certain tumors involving the base of the skull. This treatment is not yet generally available throughout the United States. Ask your doctor if proton therapy might be beneficial for you.

STEREOTACTIC RADIOSURGERY / RADIOTHERAPY

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•   Treat the skin exposed to radiation with special care. Stay out of the sun, avoid hot or cold packs; only use lotions and ointments after checking with your doctor or nurse; and clean the area with warm water and mild shampoo or baby shampoo.
Side effects are different for everyone. Some patients feel fine during treatment while others may feel uncomfortable. Before treatment, ask your doctor to describe what you can expect.

- Fatigue, or mild tiredness, may develop starting in the middle of the treatment course. However, tiredness from radiation should improve within a few weeks after radiation treatment ends.
- Hair loss may occur but only in the area being treated.
- Mild skin irritation, itchy or red scalp and/or dry peeling of the skin may occur with external beam radiation. Clean the area regularly with mild soap and warm water.
- Headaches are a common side effect of any treatment for brain tumors.
- Decreased or muffled hearing may occur. Additionally, you may experience inflammation of the ear canal with irritation, discharge, or mild tiredness, may develop starting in the middle of the treatment course.

Radiation may also cause short-term memory loss, difficulty thinking and slowness in completing tasks. Some patients benefit from medicine or a specialized radiation technique that can reduce short-term memory loss. Ask your doctor if these options are available for you.

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