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Treatment Update on Brain Tumors: Glioblastoma

Presented by

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CancerCare

Find out about:

- Advances in treatment
- Current areas of research
- Ways to cope with brain tumors
- Questions to ask your doctor



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If you are a health care professional interested in ordering free copies of this booklet for your patients, please use the online order form on our website, www.cancercare.org.

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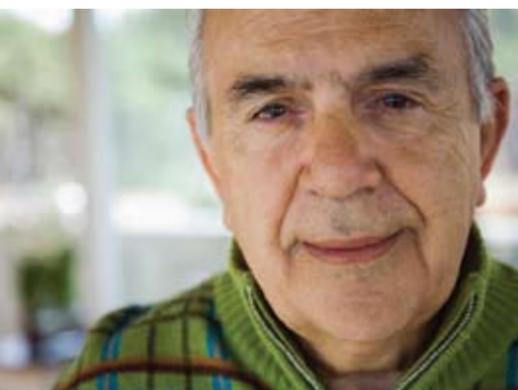
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Today, more research on brain tumor treatments is being done than ever before.

Most brain tumors are cancers that have spread from their original site—in a breast or lung, for example. But each year, about 23,000 adults in the United States are diagnosed with a primary brain tumor, a cancer that begins in the brain. In this booklet, we'll talk about the new ways that doctors are finding to treat these tumors, giving hope to patients and their families. About 60 percent of primary brain tumors are



glioblastomas, the most common and fastest-growing form of brain cancer.

Nobody knows what causes primary brain tumors. Researchers have studied many possible causes, such as cell phone use, exposure to certain viruses, exposure to electromagnetic fields near high-tension wires,

brain injuries, diet, the chemicals in plastic, and radiation treatment. Still, none has been shown to cause brain cancer.

The symptoms of brain tumors vary. Sometimes a tumor causes a general symptom such as a headache. This is due to the pressure that a tumor can place on the brain. In other cases, a tumor causes more specific symptoms related to its location. For example, a tumor found in the part of the brain that controls movement may cause muscle weakness.

Signs and Symptoms of Brain Tumors

Not everyone with brain cancer will have these symptoms. And, having some of these symptoms doesn't necessarily mean that brain cancer is the cause. Talk with your doctor if you experience:

General signs and symptoms

- Headaches
- Seizures
- Changes in personality
- Memory lapses
- Nausea and vomiting
- Changes in vision

Specific signs and symptoms, depending on the location of the tumor

- A feeling of pressure in the head or headache
- Loss of balance
- Impaired fine-motor skills, such as the ability to type
- Impaired judgment
- Muscle weakness or paralysis
- Changes in speech, hearing, memory, or emotional state
- Problems understanding or retrieving words
- Extreme sensitivity to touch
- Arm or leg weakness on one side of the body
- Confusing the left and right sides of the body

Diagnosing Brain Tumors

When doctors suspect a brain tumor, they usually perform some kind of a brain scan. The test that is used most often is called MRI, which is short for magnetic resonance imaging.

An MRI uses magnetic fields to take pictures inside the body to detect a tumor.

Other types of scans, such as PET scans (positron emission tomography), may help doctors see if a tumor is fast or slow growing. Slow-growing cancerous tumors are called low-grade tumors. High-grade tumors tend to grow more quickly. Some tumors start out growing slowly and then become faster growing later on. Many tumors contain mixtures of both slow- and fast-growing tumors.

If a tumor is found, the next step is to remove it, if possible, and test it for cancer cells in order to decide on treatment. In some cases, the tumor can be removed with surgery. But if the tumor is located in a part of the brain on which surgery would pose a risk, a biopsy may be done. For this test, a small piece of the tumor is removed and examined under a microscope to look for cancer cells. Using special computers to guide a needle through the skull, doctors can perform safe brain biopsies.

Treating Brain Tumors

As with most cancers, there are four main treatments for brain cancer that can be used alone or in combination: surgery, radiation, chemotherapy, and targeted treatments. By removing or shrinking brain tumors, doctors relieve the pressure on the brain these tumors can cause. Treatment also reduces other symptoms such as seizures, headaches, or difficulty with balance.

SURGERY

Many brain tumors are surgically removed using a procedure called a craniotomy. In this procedure, the surgeon opens the skull and removes as much of the tumor as possible. Recent advances have improved the safety of craniotomy. For example, special computers hooked up to MRI monitors allow surgeons to view a “map” of different parts of the brain. The map helps them find and remove tumors more easily and safely.

In rare cases, a tumor blocks the center of the brain, interrupting the flow of spinal fluid. Spinal fluid, which protects and nourishes the brain, needs to circulate throughout the brain. If the fluid is blocked, the surgeon may insert a shunt, or plastic tube, that enables the fluid to be redirected to a different area of the brain.

Another type of surgery uses radiation instead of a scalpel to treat some types of brain tumors. Radiation reduces the size of tumors and in some cases eliminates them. This technique is called stereotactic radiosurgery. For this method, a computer assembles



images from CT scans, MRI scans, or both to locate the tumor and help direct the radiation beams from many different directions. (CT is a special type of x-ray used to detect the spread of cancer or track the progress of treatment.) In this way, a single, high dose of radiation is aimed at the tumor, sparing healthy tissues.

After conventional surgery, doctors usually prescribe dexamethasone or other steroid medications to reduce swelling in the brain. The swelling—called edema—may be caused by the tumor itself or the surgery. Steroids are powerful

drugs that can cause a variety of side effects, such as weight gain, changes in appetite, mood swings, and difficulty sleeping. Because they are powerful medications, the use of steroids must be monitored carefully by a doctor. These drugs are an essential part of improving a patient's quality of life and reducing symptoms such as seizures, memory problems, or confusion that may result from brain tumors and treatment.

Usually, brain surgery is not very painful. Most people only need a mild pain reliever, such as aspirin, afterward.

RADIATION

After a cancerous brain tumor is removed using standard surgery, the surrounding area of the brain is often treated with radiation. (Patients who have had radiosurgery may receive additional radiation if needed, but only if they have not already had such treatments.) Radiation is used because



after a brain tumor is removed, some cancer cells may be left behind. These cells can act as seeds, sparking growth of another tumor. Radiation helps get rid of these cells.

People with brain tumors typically get about 30 radiation treatments, spaced over the course of about six weeks. Each treatment takes only a few minutes a day.

Some people feel tired after getting radiation. And, some people who have had radiation may feel skin irritation or lose their hair in the area

receiving radiation. The hair may not grow back, but most of the other side effects go away with time or can be treated with medications.

CHEMOTHERAPY

The latest standard of care for patients with glioblastoma is radiation plus temozolomide (Temodar), which can be taken by mouth. After radiation treatment is finished, people often continue taking temozolomide for as long as may be necessary. Currently, the goal of using this drug is to keep the tumor stable, stopping it from growing any farther. When examining brain tumor tissue under a microscope, researchers can now predict, to some degree, which tumors are likely to be treated most successfully by the drug.

Coping With Side Effects of Chemotherapy

In the past, some patients chose not to take chemotherapy because of the side effects it could cause. But today, doctors prescribe medications that reduce and even prevent these symptoms. Talk to your doctor if you experience:

Nausea or vomiting There are drugs that prevent vomiting and ease both a queasy stomach and the “anticipatory nausea” that can occur even before chemotherapy starts.

Loss of appetite Steroid medications increase muscle and weight gain and stimulate the appetite.

Fatigue If the source of the fatigue is anemia (a low red blood cell count) or an infection, it can be treated with specific medications. If the weariness is not caused by a medical condition, taking a nap or doing gentle exercise can help.

Pain New pain medications and new methods of delivering pain medicine—through a patch, a lozenge, or a surgically implanted device—offer relief. A procedure that blocks pain nerves has also proved highly effective.

TARGETED TREATMENTS

Unlike chemotherapy, targeted treatments block specific cell mechanisms that are thought to be important for cancer cell growth. Targeted treatments are meant to spare healthy tissues and cause less severe side effects. One type of targeted treatment used to treat glioblastoma is bevacizumab (Avastin).

Bevacizumab helps block the development of blood vessels. This is an important part of treating brain tumors, because this type of cancer develops very strong networks of blood vessels that feed tumor growth. Recently, the U. S. Food and Drug Administration approved bevacizumab for treating

The Importance of Clinical Trials

There's no question that clinical trials have led to advances in brain cancer treatment, creating a brighter future for people with these tumors. Clinical trials are the standard by which we measure the worth of new treatments and quality of life as patients go through those treatments. For this reason, doctors and researchers urge people with cancer to take part in clinical trials.

Your doctor can guide you in making a decision about whether a clinical trial is right for you. Here are a few things you should know:

- Often, patients who take part in clinical trials gain access to and benefit from new treatments.
- Before you participate in a trial, you will be fully informed as to its risks and benefits.
- No patient receives a placebo (inactive pill or liquid) if there is a standard treatment available. Most clinical trials are designed to test a new treatment against a standard treatment to find out whether the new treatment has any additional benefit.
- You can stop taking part in a clinical trial at any time for any reason.

people with glioblastoma tumors that continue growing after standard treatment. Bevacizumab is also approved for the treatment of some types of colon, rectal, breast, and lung cancers.

New Treatments on the Horizon

In addition to the treatment advances discussed above, there are also a number of other promising leads in the research on brain tumors:

- **New ways to deliver chemotherapy** When anti-cancer drugs are given in pill form or through a vein, they have to travel throughout the body before getting to the brain. As the drugs travel, they can cause side effects such as nausea. Researchers are developing chemotherapy that can be delivered directly into the brain tumor itself. For example, Gliadel is a little wafer containing an anti-cancer drug called carmustine. After removing tumors with traditional surgery, surgeons can leave these wafers in the brain, where they slowly dissolve and release the drug. Another new technique is called convection-enhanced delivery of chemotherapy. Doctors put one to four tiny tubes into a brain tumor and connect the tubes to a pump that delivers large doses of chemotherapy directly into the brain.
- **Radiation sensitizers** These are drugs that get into the cells of a brain tumor and make them more likely to be treated successfully by radiation. As a result, doctors can use lower doses of radiation, reducing treatment side effects.
- **Gene therapy** Researchers are trying to pinpoint specific genes that cause brain tumor growth. Once the genes are identified, researchers hope to find ways to “turn them off,” so they won’t promote cancer growth. For example, one large study recently identified a gene called IDH1, which is often involved in the growth of glioblastoma tumors.
- **Immunotherapy** When you develop a tumor, your body tries to fight back with its immune system, the body’s natural defense against disease. But usually this system is not strong enough to stop tumor growth. Vaccines are being developed that may strengthen the immune system’s response to cancer so that it is better able to stop the growth of tumors.



Researchers are continually looking at new ways to treat brain cancer. For people whose brain tumors have grown back after standard treatment, joining a clinical trial can be a good way to continue treatment. Your doctor can tell you about clinical trials for which you may be eligible. You can also go online for more information. See our list of resources on page 16.

Coping With Brain Tumors

When you're first diagnosed with a brain tumor, the key to finding your way is to gather information and have good communication with your health care team. Here are some tips to help you cope:

Do your research The Internet is a great place to start, but even if you're not computer savvy, a lot of information is available through the mail and by telephone. Organizations such as CancerCare® offer free and reliable information. For more information on resources, see page 16.

Find a specialist Look for specialists at cancer centers with experience treating brain tumors. Ask the following questions:

- What are my treatment options?
- What are the risks and benefits of the recommended treatment?
- What research has been done on this treatment?
- What are the likely side effects?
- Do I have time to get a second opinion before starting treatment?



- Can treatment wait?
- What will happen if there is no treatment?
- At this center, who is the key nurse or doctor I can talk to if there's a problem?

Get a second opinion Have another doctor look at your scans and review your case. Most medical centers affiliated with a university have what is called a tumor board, where patients' cases are discussed with all the doctors present. Having your case shown to such a board is a good way to get a lot of feedback at one time.

Speak up When you talk with your doctor, it's important to remember that he or she is the expert in biology and medicine, but you are the expert about your own life. Don't be afraid to bring up any topic of concern to you. Your doctor can't treat a problem if you don't make him or her aware of it. Doctors now understand, better than ever before, that patients are concerned about good quality of life as they go through treatment.



Keep a notebook Write down your questions and keep notes of your doctor's answers to them. If possible, have a friend or family member come with you when you visit your doctor to help you get the information you want and ask questions you might not think of.

Realize that it's normal to go through changes Having a brain tumor and being treated for it can affect your mood, memory, ability to think clearly, and other important areas of your life. It can also affect the way you feel about yourself and how you view the future. It's perfectly normal to feel

sad, angry, afraid, or frustrated and to ask for help with these feelings. The more you learn about your condition, the better you can manage and adapt.

Join a support group You and your family members may benefit from a support group, which can reduce the feeling that you are going through cancer alone. Support groups focus on coping and living with a cancer diagnosis. They provide reassurance, suggestions, and insight, allowing you to share similar concerns with your peers in a safe and supportive environment. At CancerCare®, people with cancer and their loved ones can take part in free telephone and online support groups.

Seek the help of a social worker or an oncology nurse practitioner People and their families who are coping with a brain tumor diagnosis often need someone to talk with who can help them sort through all the complex emotions and issues that arise. These healthcare professionals can provide emotional support, help you cope with your treatment and its side effects, and guide you to other resources. CancerCare offers free counseling from professional oncology social workers on staff.



Contact CancerCare In addition to free counseling and support groups, CancerCare also provides educational programs and publications, financial assistance for cancer-related costs like transportation and child care, and referrals to other resources. To get help, call us at **1-800-813-HOPE (4673)** or visit **www.cancercare.org**.

Frequently Asked Questions

Q After he was diagnosed with brain cancer, the late Senator Edward Kennedy suffered a seizure at a luncheon. Is it common for people with brain tumors to have seizures?

A It's not unusual for people with brain tumors to have seizures. Many times, a seizure is what leads a person with an undiagnosed brain tumor to seek medical care. Even after diagnosis and treatment, however, a seizure doesn't mean that the tumor is changing. Some people need medication to prevent seizures. The most commonly prescribed anti-seizure drug is phenytoin (Dilantin and others).

Q I'm concerned about my husband having to take steroids as part of his treatment. Aren't there a number of side effects?

A Many people think of steroids in a negative way because of their misuse by some athletes, for instance. But in the case of people with brain tumors, steroids are an important part of treatment. While it's true that steroids can cause such side effects as weight gain, mood swings, or muscle weakness, in some cases they also play a vital role in reducing swelling in the brain and seizures. The key thing to remember is that your husband and his doctor need to work together to arrive at the right dosage—one that maximizes the benefits while minimizing the side effects. When you weigh the positive against the negative, it's easier to understand why doctors rely on steroids to help their patients with brain tumors.

Q Can eating organic foods and taking nutritional supplements help treat brain tumors?

A No one really knows. But one of the best things a person with a brain tumor can do is eat as healthfully as possible and stay physically active. People who have not been particularly active can start by walking regularly. Be sure to talk with your doctor about how vigorous your activity should be. If you smoke, make every effort to quit. Also, be sure to tell your doctor about any vitamins, minerals, herbs, or other supplements you take. Some over-the-counter supplements can interact with medications, particularly anti-seizure drugs; other supplements may raise the risk of excess bleeding.

Q I've just finished treatment for a brain tumor. Even though my doctors say the treatment was effective, could my brain tumor come back?

A There is always a chance that a brain tumor will grow back. After treatment, it's important that you and your doctor work out a follow-up plan to help you stay involved in your care. Even if you feel great and everything seems to be going well, you need to stay in touch with your doctors and follow their advice.

Also, remember that you are not alone. Feeling worried about a cancer recurrence is the number one issue people face when they finish treatment. Learning how to manage this concern will help you continue living your life in a meaningful way. Support groups for post-treatment survivors, such as those offered by CancerCare®, can help.

Q I had radiation for a brain tumor several months ago. On my last follow-up MRI, I had some unusual new spots in different areas of my brain. My doctor says they are not cancerous, but she wants to keep an eye on them. What is going on?

A Radiation has many effects on the brain. Some of these effects may show up as “spots” on an MRI scan. If a tumor develops in one of the spots later, it means that tumor cells may have traveled through the brain and settled in that particular spot. Nobody knows why the cells grow and become a tumor in a certain area. At this point, it’s important to heed your doctor’s advice and continue with your follow-up care.

Q I keep hearing about new treatments for brain tumors, but it seems that they won’t be available until too far in the future to help people who are facing brain cancer right now. Is there any hope that the treatments we keep hearing about will be available soon?

A As discussed in this booklet, many advances have been made in treating brain tumors. Other new treatments are very much expected to be available in the near future. Researchers all over the world are studying different ways to slow the growth of brain tumors. And, experts are especially hopeful that we will soon know more about what combination of existing treatments works best to treat brain tumors.

Resources

CancerCare

1-800-813-HOPE (4673)

www.cancer.org

American Brain Tumor Association

1-800-886-2282

www.abta.org

American Cancer Society

1-800-227-2345

www.cancer.org

The Brain Tumor Foundation

212-265-2401

www.braintumorfoundation.org

Cancer.Net

Patient information from the American Society of Clinical Oncology

www.cancer.net

Cancer Support Community

www.cancersupportcommunity.org

National Brain Tumor Society

1-800-934-2873

www.braintumor.org

National Cancer Institute

Cancer Information Service

1-800-422-6237

www.cancer.org

National Coalition for Cancer Survivorship

1-888-650-9127

www.canceradvocacy.org

To find out about clinical trials:

Coalition of Cancer Cooperative Groups

www.CancerTrialsHelp.org

National Cancer Institute

www.cancer.gov/clinicaltrials



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The information presented in this patient booklet is provided for your general information only. It is not intended as medical advice and should not be relied upon as a substitute for consultations with qualified health professionals who are aware of your specific situation. We encourage you to take information and questions back to your individual health care provider as a way of creating a dialogue and partnership about your cancer and your treatment.

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When one word changes your world,

CANCER*care*[®]

makes all the difference



With CancerCare,
the difference comes from:

- Professional oncology social workers
- Free counseling for you and your loved ones
- Education and practical help
- Up-to-date information

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