Brain&Life®

AMERICAN ACADEMY OF NEUROLOGY®

Brain Tumor: The Basics

WHAT IS A BRAIN TUMOR?

A brain tumor is a mass or growth of abnormal cells in the brain. Tumors can be either noncancerous (benign) or cancerous (malignant). Primary brain tumors are tumors that begin growing in the brain. Secondary (metastatic) brain tumors begin as cancer in another part of the body before spreading to the brain.

HOW COMMON IS IT?

Approximately 180,000 brain tumors (including both benign and malignant) are diagnosed in the United States each year. Roughly 40,000 are primary tumors and the rest are secondary. The National Cancer Institute estimates 23,770 Americans were diagnosed with brain cancer in 2016, and 16,050 died from it.

WHAT CAUSES IT?

A primary brain tumor results from a genetic mutation in certain nerve cells in the brain (neurons) that causes them to grow too quickly. A secondary brain tumor results only after cancer has grown in another part of the body and then spreads to the brain.

WHAT ARE THE RISK FACTORS?

- **Age:** The risk of a brain tumor increases with age.
- **Exposure to radiation:** People who have been exposed to a type of radiation called ionizing radiation have an increased risk for brain tumors. Examples include radiation therapy used to treat cancer and radiation exposure caused by atomic bombs. More common forms of radiation, such as electromagnetic fields from power lines and radiofrequency radiation from cellphones and microwave ovens, are non-ionizing and have not been proven to be linked to brain tumors.
- **Family history:** A small portion of brain tumors occur in people with a family history of brain tumors or some genetic conditions such as neurofibromatosis type I and II; tuberous sclerosis; von Hippel-Lindau syndrome, a rare condition that can cause tumors in many organs; and Li-Fraumeni syndrome, a rare condition that predisposes carriers to cancer.

WHAT ARE THE SYMPTOMS?

Symptoms vary depending on tumor type, size, and location but can involve headaches and nausea; hearing, vision, or speech difficulties; problems with balance; loss of sensation or strength in the limbs; seizures; changes in personality; and confusion.

WHAT TREATMENTS ARE AVAILABLE?

Treatment varies depending on the patient's personal health and the size and location of the tumor. Regular treatments, however, include surgery (the physical removal of some or all of the tumor), ionizing radiation therapy (the use of radiation to attack malignant cells), and chemotherapy (the use of drugs to battle the growths).

WHAT RESEARCH IS BEING DONE?

The National Institute of Neurological Disorders and Stroke (**ninds.nih.gov**) conducts research into new drugs, gene therapy, surgery, radiation, medications that enhance the body's overall immune system to recognize and fight cancer cells, and a combination of therapies. For more information about clinical trials, visit **clinicaltrials.gov**.

For more *Brain & Life* articles on brain tumor, go to **BrainLifeMag.org/BrainTumor**.

For more resources and support, contact:

- American Brain Tumor Association: **abta.org**; **800-886-2282**
- Brain Tumor Foundation: **braintumorfoundation.org**; **212-265-2401**
- Children's Brain Tumor Foundation: **cbtf.org**; **866-228-4673**
- National Brain Tumor Society: **braintumor.org**; **617-924-9997**
- Voices Against Brain Cancer: **voicesagainstbraincancer.org**; **212-340-1340**

PUBLICACIONES EN ESPAÑOL: *Brain & Life* en Español y Basics en Español disponibles ya en **BrainandLife.org**; Tumores Cerebrales: Esperanza en la Investigación: **bit.ly/NINDS-TC-Espanol**

SOURCES: NATIONAL LIBRARY OF MEDICINE; NATIONAL INSTITUTE OF NEUROLOGICAL DISORDERS AND STROKE; *BRAIN & LIFE*.

Wolters Kluwer