

Brain Cancer

Brain cancer is due to the growth of abnormal (tumor) cells in the brain. Similar tumors occur in the spinal cord. While benign tumors generally do not invade other tissues, malignant (cancerous) tumors contain fast-growing cells that can spread to surrounding healthy brain tissue. Both benign and malignant tumors tend to cause symptoms by putting pressure on surrounding structures; however, malignant tumors tend to invade and destroy adjacent structures. There are two types of brain cancer: primary, which originates in the brain, and metastatic, the more common type, which begins elsewhere in the body and spreads to the brain.

Statistics

- In 2020, an estimated 23,890 new cases of brain and other nervous system cancers that *start* in the nervous system will be diagnosed in the United States.
- During 2020, brain cancer will claim the lives of an estimated 18,020 Americans.
- In Texas, an estimated 1,921 new brain and other nervous system cancers that *start* in the nervous system will be diagnosed, and 1,282 Texans are expected to die from the disease in 2020.
- In children, primary brain and spinal cord tumors account for approximately 25 percent of childhood cancers, the second most common cancers (behind leukemia).
- The likelihood an individual will be diagnosed with a malignant tumor of the brain or spinal cord is less than 1 percent over his or her lifetime.

Risk Factors

Most brain tumors have no known causes, and known risk factors are few.

- **Radiation:** Exposure to radiation therapy to the head increases the risk of developing a primary brain tumor.
- **Immune System Disorders:** Patients with compromised immune systems have a higher chance of developing lymphomas of the brain, including AIDS, Epstein-Barr virus, or having an organ transplant.
- **Family history:** A small percentage of brain tumors develop in people with a family history of brain tumors or genetic syndromes.

Symptoms and Signs

Brain cancer symptoms vary with each individual. People with these symptoms should consult their physician:

- Unexplained or recurring nausea and vomiting
- Seizures
- New, recurring, or worsening headaches
- Problems with balance
- Changes in speech, vision, or hearing
- Weakness or numbness in muscles and limbs
- Unexplained drowsiness or coma
- Changes in behavior or personality
- Loss of movement or sensation in an extremity
- Short-term memory loss

Tips for Prevention

Other than reducing exposing the head to radiation, there are no known ways to prevent primary brain or spinal cord tumors. However, in adults, certain lifestyle changes, such as maintaining a healthy weight or quitting smoking, are believed to decrease the risk of developing cancers in the body, which could potentially reach the brain.

Treatment Options

Treatment for brain cancer is determined by many factors, including: tumor type; size and location in the brain; whether it's newly diagnosed or a recurrence; the tumor's specific genetic makeup and your overall health. Brain tumors can be very difficult to treat; therefore, many patients require a team of physicians including a neurosurgeon, neurologist, radiation oncologist, medical oncologist or neuro-oncologist, and an endocrinologist.

Surgery is the main treatment for brain tumors if located within the membranes covering the brain or in an area where removal would not damage the surrounding areas. Brain tumors that are located in or near sensitive areas can make total removal more risky, or occasionally impossible. Proton therapy is particularly useful in tumors deep in the brain or near sensitive areas due to the accuracy of the proton beam.

Several other treatments may be used such as radiation therapy, radiosurgery, proton therapy, chemotherapy, targeted therapy, or alternating electric field therapy. Often a combination of treatments is used to provide the best chance of disease control.

Source: American Cancer Society, American Society of Clinical Oncology, National Brain Tumor Society, National Cancer Institute, and Texas Cancer Registry

