



Fact Sheet: Brain Tumor

Definition

A tumor is an abnormal mass of tissue which results from the excessive multiplication of cells. A tumor that originates in the brain is called a "primary" brain tumor. Primary brain tumors may be either benign or malignant. These tumors very rarely, if ever, metastasize (spread to other parts of the body). Metastatic brain tumors begin as a cancer elsewhere in the body then spread to the brain.

Facts

According to the American Brain Tumor Association, the estimated number of new cases of primary brain tumors diagnosed each year is approximately 20,000. An additional 20,000 individuals are diagnosed with metastatic brain tumors.

Brain tumors are usually classified by cell types. Certain types of primary brain tumors most commonly occur in children while others occur more frequently in adults. Adult brain tumors have their highest incidence between the ages of 40 and 60 years, with a slight preponderance in men.

Symptoms

Symptoms may vary by type and location of the brain tumor. They can include: severe headaches, seizures, visual disturbances, motor weakness, sensory disturbances, language disorders, short term memory loss, personality changes, mood swings, intellectual impairment, and endocrinological disturbances.

Diagnosis

Diagnosis of a brain tumor occasionally is difficult because symptoms may be similar to those caused by other disorders. However, early detection is important as early treatment may limit the extent of damage to physical and mental functions. Making the diagnosis of a brain tumor has been greatly simplified since the advent of CT scans and MRI scans. Occasionally other techniques like an arteriogram (shows the blood vessels in the brain) or sometimes an electroencephalogram (measures the electrical activity of the brain) may be used in order to obtain more information about a lesion seen on a CT or MRI scan. For certain types of brain tumors, it is also important to analyze cerebrospinal fluid, obtained by a lumbar puncture, for the presence of tumor cells.

Treatment

Various forms of treatment are available:

Surgery

The first treatment for most brain tumors is either surgery to remove the tumor or a biopsy to obtain a small sample of tumor. The tumor tissue that is removed is used to determine the exact type of tumor. Additional treatment depends on the tumor type and amount of tumor removed.

Side effects of surgery include the risks of infection, blood clotting, seizures and, in some cases, increased neurological deficit that may be temporary or permanent.

Radiation Therapy

Conventional radiation therapy uses external beams of either x or gamma rays aimed at the tumor. The therapy is given over a period of several weeks.

Other types of radiation also are available. One of these is interstitial radiation—implanting radioactive seeds directly into a tumor. Stereotactic radiosurgery delivers a high, single dose of radiation to a small, well-defined area. Another technique is photodynamic therapy. A light sensitive drug is given through a vein and concentrates in the tumor. Then, during a surgical procedure, a special light activates the drug. Hyperthermia uses heat to kill tumor cells. Also available are other forms of radiation energy, dosages, and schedules.

Side effects of radiation therapy may include hair loss, skin irritation, fatigue and, rarely, increase of pre-existing neurologic deficits.

Chemotherapy

Certain chemotherapeutic drugs have proven to be effective in controlling the growth of a tumor for shorter or longer periods of time. Research continues to develop new drugs, new combinations of drugs and new ways of delivering drugs.

Side effects of chemotherapeutic drugs include nausea or vomiting, disruption of the production of blood cells in the bone marrow, occasionally soreness of the mouth or mouth ulcers and skin rash. These side effects are usually reversible and may vary with each individual.

Immunotherapy

This is a form of therapy aimed at activating the patient's own immune system in order to kill tumor cells. This group of substances includes the interferons, interleukins, growth factors and others. These forms of therapy are still experimental and only used in strictly controlled protocols at certain treatment centers.

Steroids

Drugs such as prednisone and dexamethasone are being used throughout the treatment of patients with brain tumors in order to reduce the swelling around the tumor.

Side effects are increased appetite and therefore weight gain, swelling of face and feet, nervousness or restlessness, trouble sleeping, blood sugar and hormonal disturbances, and weakening of bones and muscles.

Recommended Readings

Navigating Through A Strange Land. A Book For Brain Tumor Patients and Their Families, Patricia Ann Roloff (Ed), 1995, Indigo Press, 109 Walnut St., San Francisco, CA 94118.

Coping With a Brain Tumor Part I: From Diagnosis to Treatment and Part II: During and After Treatment, American Brain Tumor Association, 2720 River Road, Ste. 146, Des Plaines, IL 60018.

A Primer on Brain Tumors, Sixth Edition, Gail Segal, 1996, available from the American Brain Tumor Association, 2720 River Road, Ste. 146, Des Plaines, IL 60018.

Love, Medicine and Miracles, Bernie Siegel, 1986, Harper Perennial, New York, NY, (800) 242-7737.

Brain Tumors: A Guide, the National Brain Tumor Foundation, 1993, 785 Market St., #1600, San Francisco, CA 94103-2003. Also available:

- SEARCH (Newsletter), National Brain Tumor Foundation
- Support Groups for Brain Tumor Patients and Families, National Brain Tumor Foundation

Credits

American Brain Tumor Association, 1994, Coping With A Brain Tumor, Des Plaines, IL.

American Brain Tumor Association, 1996, A Primer of Brain Tumors, Sixth Edition, Des Plaines, IL.

National Brain Tumor Foundation, 1996, FDA Approved Use of New Chemotherapy Technology. Search, Fall 1996.

North American Brain Tumor Coalition, 1996.

Resources

Mountain Caregiver Resource Center
2491 Carmichael Drive, Suite 400
Chico, CA 95928
(530) 898-5925
(800) 995-0878
www.caregiverresources.org

Mountain Caregiver Resource Center offers a full complement of family services designed to assist caregivers of adults with brain disorders. Most services are offered free or on a low-cost sliding scale.

Services include: specialized information, family consultation and care planning, support groups, short-term counseling, respite care, legal and financial assistance, in addition to family and professional training.

Family Caregiver Alliance
690 Market Street, Suite 600
San Francisco, CA 94104
(415) 434-3388
(800) 445-8106 (in CA)
Website: <http://www.caregiver.org>
E-mail: info@caregiver.org

Family Caregiver Alliance supports and assists caregivers of brain-impaired adults through education, research, services and advocacy.

FCA's information Clearinghouse covers current medical, social, public policy and caregiving issues related to brain impairments.

For residents of the greater San Francisco Bay Area, FCA provides direct family support services for caregivers of those with Alzheimer's disease, stroke, head injury, Parkinson's, brain tumor and other debilitating brain disorders that strike adults.

Acoustic Neuroma Association
P.O. Box 12402
Atlanta, GA 30355
(404) 237-8023

American Brain Tumor Association
2720 River Road, Suite 146
Des Plaines, IL 60018
(847) 827-9910
(800) 886-2282 (patient hot-line)

American Cancer Society
1599 Clifton Road N.E.
Atlanta, GA 30329
(404) 320-3333
(800) ACS-2345 (cancer information number)

National Brain Tumor Foundation
414 13th Street, Suite 700
Oakland, CA 94612-2603
Office (510) 839-9777
(800) 934-CURE

National Cancer Institute
Building 31, Room 10A24
Bethesda, MD 20892-3100
1-800-4-CANCER
(in Hawaii, call 524-1234)

Clinical Trials on the Internet
<http://www.virtualtrials.com>

Reviewed by Sharon Lamb, R.N., President,
National Brain Tumor Foundation; and Deneen
Hesser, American Brain Tumor Association.
Prepared by Family Caregiver Alliance in
cooperation with California's Caregiver Re-
source Centers, a statewide system of re-
source centers serving families and caregivers
of brain-impaired adults. Funded by the De-
partment of Mental Health. Revised and re-
printed January 1997. ©All rights reserved.

Revised 09/26/02