

Research brain tumor - research paper

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Introduction

Brain tumors have known to affect people of all ages. The fatality rate is creating concern among physicians and it has become a grave public health issue due to premature deaths resulting in serious loss of income to families and creation of emotional distress either by prolonged period of illness; uncertainly of life or loss of a loved one.

Therefore, much has been invested in investigating causes, adapting preventative strategies, discovery of modern treatment and application of scientific measures, which can prolong life by early detection and treatment of the disease. It is not often, however, that many patients are diagnosed at a stage when the disease can be cured. Hence, continuous research into causes as health promotion measures to prevent its occurrence is continuing.

Health promotion policies are highly supportive of brain tumor research, especially, among children. WHO has reiterated its support to research in health promotion and prevention techniques. Precisely, the declaration, ‘ that health promotion strategies are not limited to a specific health problem, or to a specific set of behaviors.’ (“ Health Promotion,” 2011).

“ WHO as a whole applies the principles of, and strategies for, health promotion to a variety of population groups, risk factors, diseases, and in various settings too. More importantly, it encompasses the associated efforts put into education, community development, policy, legislation and regulation.” (“ Health Promotion,” 2011).

Definition

Brain tumor is described as an abnormal tissue development known as a growth or an intracranial neoplasm (Wills). Scientifically, unlike many other tumors they have a unique way of spreading, known as local extension.

(Wills) Therefore, it does not metastasize as many other tumors when it is malignant. Precisely, tumors can be benign or malignant. When tumors are diagnosed as malignant cytology reports detect cancer cells. (Wills)

In the United States alone 17, 000 people are diagnose each year with brain tumors; half are benign, but, however occur in areas which can cause serious defects and eventual be death. (Wills). Benign usually contain harmless cells, which have occupied a definite space in the region it is located and continues to grow within those boundaries. (Wills) Apart form classification of benign and malignant they can also be primary and secondary. Primary tumors originate from brain cells, whereas secondary occur as metastases from other locations.

Etiology

Scientists have discovered that polycystic astrocytoma has genetic related factors as its etiology. " From our own research we know that there is a defect in the BRAF gene in the great majority of pilocytic astrocytomas," says Professor Dr. Peter Lichter of the German Cancer Research Center. This defect causes a cellular signaling pathway, which in healthy cells is active only in case of acute need, to be permanently activated." (Science Daily).

Further, Jan Gronych confirmed studies to confirm that an actual relevance of BRAF gene to carcinogens found in brain tumors diagnosed in children. There is still much research to be undertaken in addressing brain tumor etiology as

is the case of tumors occurring in many other parts of the human anatomy. Predisposing factors are recognized as age; exposure to radiation or chemicals and family history. Age has often been recognized as risk factor due to hormonal changes in women during menopause. Brain tumors in children are increasing. When age is considered predisposing factor they are a very susceptible group, especially, with the BAFT gene discovery as being responsible. (Science Daily)

Radiation and chemical exposure are some of the leading speculated causes of brain tumors in the absence of any other scientific evidence. Studies conducted on radiographers, dentist engaged in sandblasting and factory worker who are exposed to sandblasting chemicals have been proven to have developed brain tumors of either the malignant or benign nature.

Signs and symptoms

These vary from individual to individual. However, the basic signs might be loss of sensory functions related to the section of the brain affected.

Subsequently, facial distortions may occur either in the region of the eyes, nose or mouth or portions of the face.

Symptoms of Brain Tumors (University of Florida)

The symptomatic progressions which may go unnoticed are new “ onset or change in pattern of headaches that gradually become more frequent and more severe; unexplained nausea or vomiting ; vision problems, such as blurred vision, double vision or loss of peripheral vision Gradual loss of sensation or movement in an arm or a Difficulty with balance Speech difficulties Confusion in everyday matters; Personality or behavior changes ;

Seizures, especially in someone who doesn't have a history of seizures and Hearing problems.” (Mayo clinic)

What are the different types of brain tumors?

(“ Medicine that touches the world”)

The most frequently occurring brain tumor is known tumor is gliomas which originate from glial cells and are the connective tissue attached to brain.

Gliomas vary in size and categories depending on their location in the brain tissue. Astrocytomas; brain stem gliomas; ependymomas;

oligodendrogliomas; metastatic tumors; meningiomas; Schwannomas;

pituitary tumors; primitive neuroectodermal tumors (PNET);

medulloblastomas; craniopharyngioma and pineal region tumors. (“ Medicine that touches the world”)

The types of tumors are highlighted in the diagram and their locations

represented. . Astrocytomas; brain stem gliomas; ependymomas;

oligodendrogliomas are benign while the others are malignant.

Diagnosis and Treatment

MRI Appearance of Primary Brain Tumors. (“ Brain Tumor”)

Pictured at left is a low grade glioma (Pilocytic Cerebellar Astrocytoma) with noncontrast CT on the left and axial T2- weighted MRI on the right.)

from Harvard radiology (for more pics go here.) . (“ Brain Tumor”)

The specific treatment of a brain tumor depends on whether it is benign or malignant and the portion of the brain it is located. This determines the prognosis as well. Early diagnosis is the key to successful treatment and

cure. Diagnostic procedures include CT Scans, MRI, and Neurological examinations are the initial tests. Then later if these tests indicate the presence any growths the physician can further order angiogram, skull x-ray; spinal tap; myelogram and biopsies. (" Brain Tumor")

Treatment depends on the stage at which the diagnosis is made. Often, if it is in the first stage is can be treated through palliative chemotherapy. When beyond chemotherapy, then surgery maybe advocated. In the case of the condition being inoperable the patient is placed in hospice.

Conclusion

In this research presentation definition of Brain tumor was given, as an abnormal tissue development known as a growth or an intracranial neoplasm (Wills) . An etiology arriving from genetics from recent discoveries was highlighted. Signs and symptoms were given; diagnosis and treatment were explored pointing out the many types of brain tumor treated daily in hospital around the world.

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