



Glioblastoma: Understanding the most Aggressive Brain Cancer

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INTRODUCTION

Glioblastoma, also known as Glioblastoma Multiforme (GBM), is one of the most aggressive and deadly forms of brain cancer. In this article, we delve into the complexities of glioblastoma, discussing its causes, symptoms, diagnosis, treatment options, and the challenges associated with managing this devastating disease. Glioblastoma originates from glial cells, which are supportive cells in the brain. Despite its relatively low incidence rate compared to other types of cancer, glioblastoma accounts for a significant proportion of brain tumors in adults. This type of brain cancer is highly malignant, characterized by its rapid growth and invasive nature, making it notoriously difficult to treat. The exact cause of glioblastoma is not fully understood, but several factors may increase a person's risk of developing the disease.

DESCRIPTION

Some genetic conditions, such as Neuro Fibromatosis Type 1 (NF1) and Li-Fraumeni syndrome, are associated with an increased risk of developing glioblastoma. Additionally, certain genetic mutations, such as alterations in the genes EGFR, PTEN, and IDH1, have been implicated in the development of glioblastoma. Previous exposure to ionizing radiation, either from radiation therapy for other cancers or environmental factors such as radiation accidents, may increase the risk of developing glioblastoma later in life. Glioblastoma is slightly more common in men than in women, although the reasons for this gender disparity are not well understood. The symptoms of glioblastoma vary depending on the location and size of the tumor but may include Headaches, often worsening in the morning, Nausea and vomiting, Seizures, Changes in cognitive function, memory, or personality, Weakness or paralysis on one side of the body, Visual disturbances, difficulty speaking or understanding language. Diagnosing glioblastoma typically involves a combination of imaging studies and surgical biopsy. Magnetic Resonance Imaging (MRI) and Computed Tomography (CT) scans are commonly used to

visualize the brain and identify abnormalities such as tumors. A biopsy involves removing a small sample of tissue from the brain for examination under a microscope. This procedure is necessary to confirm the diagnosis of glioblastoma and determine the tumor's characteristics, including its grade and genetic makeup. Treatment for glioblastoma usually involves a multimodal approach, combining surgery, radiation therapy, and chemotherapy. However, despite aggressive treatment, glioblastoma is associated with a poor prognosis, and most patients face a challenging and uncertain journey. The primary goal of surgery is to remove as much of the tumor as possible without causing significant damage to healthy brain tissue. However, complete resection is often challenging due to the infiltrative nature of glioblastoma cells. Radiation therapy uses high-energy X-rays or protons to target and kill cancer cells. It is typically administered after surgery to target any remaining tumor cells and reduce the risk of recurrence.

CONCLUSION

Glioblastoma is a devastating diagnosis that presents significant challenges for patients, caregivers, and healthcare providers alike. While advances in treatment have improved survival rates and quality of life for some patients, much work remains to be done to overcome the formidable obstacles posed by this aggressive form of brain cancer. Through collaborative research, innovative therapies, and a commitment to patient-centered care, we can strive to make meaningful progress in the fight against glioblastoma and offer hope to those affected by this devastating disease. Despite advances in treatment, glioblastoma remains a formidable foe, with most patients surviving less than two years following diagnosis. The aggressive nature of the disease, its tendency to recur despite treatment, and the limited efficacy of current therapies underscore the urgent need for continued research and innovation in the field of glioblastoma. Researchers are exploring novel treatment approaches, including immunotherapy, gene therapy, and precision medicine, in the hopes of improving outcomes for patients with glioblastoma.

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